

Radio Control CAR ACTION

THE WORLD'S LEADING R/C CAR MAGAZINE

September 1994

**you can
Race!**

**Getting started is
easy—p. 40**

**NITRO-BURNIN'
EX-T!**

**TRUCK of
the YEAR
Why it won**

**CRASH TESTED
THIS ISSUE:**

Yokomo YZ-10

MT 931

Mugen Athlete

**Kyosho Turbo
Inferno**

• **Glitch-
proofing
your motor**

A \$4.50 CANADA \$5.50



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ON THE COVER: photo by Walter Sidas.
This page: photo by John Howell.

EDITORIAL

NOT JUST A PLACE TO PARK YOUR CAR!



By now, you're probably tired of *hearing* about parking lot racing; you want to get out there and try it for yourself, but no one in your area is putting on a race. No problem; find an open area—preferably a smooth one—set up some boundary markers and charge those batteries. That's the whole point of parking lot racing; you don't need a track, or race officials, or even a lap-counting system, other than, "That's one lap; there's another!" And as for cars, anything you own will be fine. Really! You don't have to go out and buy a "parking lot racing car," because there's no such thing! If it runs and you can control it, then you've got the perfect car.

Many new cars fit the parking lot racer bill perfectly. They're designed to look real and perform well—for a moderate price. But if current data is right, most of the cars that will participate in parking lot races will be off-road buggies that have been modified for pavement use with lowered suspension and special "street" treaded tires.

Parking lot racing is neighborhood racing, and it should follow a similar format. Racing should be informal—just a bunch of friends hangin' out, racing cars. Racing shouldn't take up a whole weekend, either. An afternoon is all that's needed. I've had the most fun racing when our off-road track was rained out and we had to race on the local hobby shop's parking lot. We'd set up cookie tins filled with rocks to define the course, then we'd lay plywood over some cinder blocks to make jumps. It was awesome! More blocks means longer "hang time."

Bottom line: parking lot racing is whatever *you* want it to be; it can be an organized event held at a hobby shop; it can be you and a few friends running cars on the street. Parking lot racing isn't a certain type of car or a specific event; it's about running R/C cars and having fun. Period.

We want to hear from you!

Have a question or comment? Write to us at 251 Danbury Rd., Wilton, CT 06897, or e-mail us on the Internet (Frank Masi: frankm@airage.com; Chris Chianelli: chrisc@airage.com; Karen Jeffcoat: karenj@airage.com; John Howell: johnh@airage.com).

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DAHM'S RACING BODIES



NEW! D042 SPICE GTP Long Tail

Art Carbonell IFMAR World Champ. wins the Florida 10th Scale Winter Nationals with DAHM'S Spice GTP Body! Art also TQ'ed & won the 10th Scale Gas On-Road US Challenge with his Spice/Serpent. Mike Queller took second place with his Spice/BMT 931, & Mike also TQ'ed & won the Las Vegas Grand Prix by 5 laps! NEWS FLASH! Davy Preston just won the 17th Annual Texas Bigge with his Spice/BMT. Art Carbonell TQ'ed the Event, & Dave Campbell took 2nd Place with his Spice/Delta. RACE WITH THE WINNERS- RACE WITH DAHM'S!



NEW! D027 RUFF-E-NUFF S.E.™ Dirt & Carpet Oval Race Winning Truck Body. Includes Side Dam, Supports, Rear Spoiler, Truck Grill Decals, & Tom Kelly's Set-up Instructions for top speed & super handling!



NEW! D026 N.D. Racing Body™ New Winning Design for RC10L, RC10LSS, & Most other 10th Scale Cars! 1994 Penske Indy Styling with "Shark Fin". Superior aerodynamics for Ultra-High Performance! Includes Adjustable Super Fin Wing!



NEW! D029 SPICE WSC Long Tail Excellent Handling, Fine Detailing, Super Aerodynamics, & Maximum Engine Cooling! Driver No. D030, sold separately. This New Open Cockpit Racing Body fits the *Serpent Impact*, BMT 931, Parsec Prisma, & Delta 10th Scale Gas Powered Cars.

NEW! D025 SPICE WSC fits RC10L

CALL US AT: 707-792-1316 TO FIND OUT WHICH BODIES FIT YOUR CARS! SEND \$2.00 FOR CATALOG OR \$4.00 FOR CATALOG & DECALS TO: DAHM'S, DEPT A, P.O. BOX 360, COTATI, CA 94931 USA

LETTERS

WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," *Radio Control Car Action*, 251 Danbury Rd., Wilton, CT 06897. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

WHO'S WHO

On the race entry forms I've seen, they want card numbers, such as a NORRCA number. What is it, and how can I get one? Thanks for your help.

JEFF JAROSCH
North St. Paul, MN

Well, Jeff, NORRCA (the National Organization for Racing Radio-Controlled Autos) is a national sanctioning organization for R/C racing. There's also ROAR (Radio-Operated Auto Racing). Anyway, when you're asked for your NORRCA or ROAR membership or license number on an entry form, that means that the race is being sanctioned by that organization and will follow a set of specific rules. To join either organization or to get more info, contact NORRCA's J.R. Sitman at (909) 981-9641, or ROAR's Steve Whitney at (407) 631-5857. Many races follow either NORRCA or ROAR rules, so it's good to familiarize yourself with them. JH

CONVERT OR NOT

I want to convert my RC10 to nitro, but all the conversion kits that I've seen are for the RC10T. Would it work if I converted it to an RC10T and then converted that to nitro?

JOSH BINGHAM
East Tawas, MI

Josh, you might want to take a look at the *Moody Automotive Drive Pack*, which will work with your RC10. The kit retails for \$95. Contact Moody Automotive, 755 Ash St., Flossmoor, IL 60422; (708) 799-5597. As for converting your RC10 to a 10T and converting that to gas...well, that will take a little bit of cash, so here are some suggestions. Leave your RC10 as an electric car, and use the money you would spend on conversions to buy a new RC10GT or another gas truck. That way, you can keep

your electric car intact in case you ever want to run it again. Or sell your RC10, combine the money with the money you'd have to spend on conversions, and use it to buy a new gas truck. How does that sound? You could stick with your original plan and convert your car to a truck, but I don't think it would be worth it. JH

TECHNO LINGO

Recently, I received a Tamiya Wrangler from my girlfriend and started reading your magazine. This is my first R/C car, and I love it. Why did it take me so long to discover this fun, outstanding hobby? My problem is that I don't understand the technical lingo. I'd like to learn the language and the techniques and find out where I can get the proper documentation. And where can I get affordable kits so I can start building my own cars? Any information from your readers would also be welcome. I'd appreciate any documents that you or your readers could send me. I'm putting myself through college right now, and I don't have much cash, so good quality at low prices is what I'm looking for. I really enjoy your magazine.

STEPHEN SAJOUS
4 Wood Acres Dr.

North Brunswick, NJ 08902

If you're interested in getting into off-road driving inexpensively, Stephen, check out our August '94 issue, which features ready-to-run entry-level cars that you can buy for less than \$250; many cost less than \$200! That's a pretty good deal. There are other kits available that are relatively inexpensive, so shop around to see what you like and go for it!

As for picking up the lingo, well, it would take a ton of space here to fill you in on every term and phrase, so the only thing I can tell you for now is to keep reading "Car Action," and you'll start

(Continued on page 115)

TRINITY[®]

Instant Winners

by Joel Magic Johnson, IFMAR & PROCAR World Champion

Summer is here and the time is right for racing in the streets. With the warm weather here, the racing moves outdoors, and what better time than now to upgrade your old Associated 10L cars into brand-new Evolution 10s. That's right, we've made our "Instant Winner" conversion kits especially for those of you who already own an Associated 10L or 10LSS.

Now you can easily and economically convert that old 10L into the latest and fastest on-road or oval car in R/C. What we did was to figure out which of the Associated parts you already have on your car or in your pit box fit on the EV10. We then made up our "Instant Winner" conversion kits, which consist of EV10 car kit less the common parts. You still get the EV10 chassis with its fantastic Reactive Caster™ front suspension; what you don't get is the stuff you already have, like differential parts, ball bearings, wheels, hubs, body posts, etc. You already have these, so why buy them again? The best part is that you save more than \$100 by buying the "Instant Winner" conversion kit rather than a complete EV10 car kit.

If you're already an EV10 driver, and you want to put together a spare chassis, buy the "Instant Winner" kit. This will give you all the graphite, screws, shocks, front-end pieces, etc. Build it up and keep it in your pit box. In case of a serious wreck, just transfer the differential, the body posts and the tires, and you'll be ready to race again. You save money by buying the "Instant Winner" kit rather than

buying all the bits and pieces to build up a second car.

Our "Instant Winner" kits are available in three different styles:

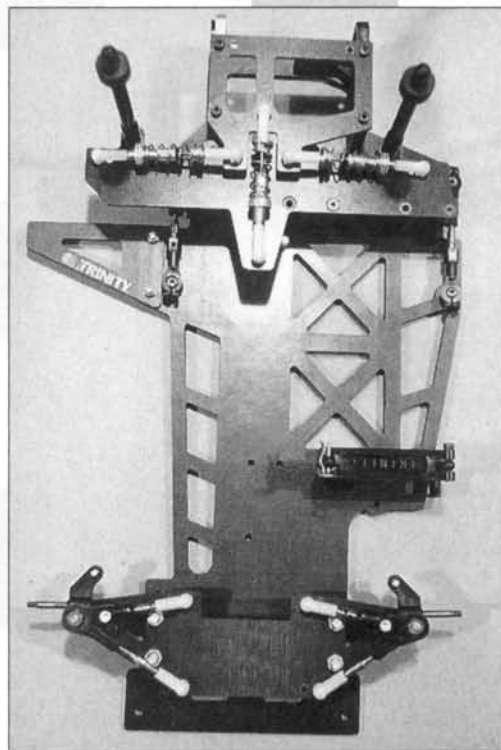
EV0001—Associated 10L to Evolution 10 On-Road—\$240.

This will convert your 10L on-road car to the Evolution 10—just like the car I drove to victory in the IFMAR World Championships and the ROAR On-Road Nationals.

EV0002—Associated 10LSS to Evolution 10ss Super Speedway
Converts your Associated 10LSS to an Evolution 10ss super-speedway car kit. This kit is a narrow superspeedway car, designed to run on super-fast high-banked tracks like the legendary Lake Whippoorwill superspeedway.

EV0003—10LSS to Evolution 10wo, Wide Super Speedway
A lot of you oval racers never get to run on a superspeedway like the Whip, but mix it up weekly on a tight, flat oval track where handling and fender rubbing stability are necessities. If that's your scenario, then our "Instant Winner" Evolution 10 wide oval conversion is what you should be running. This wide chassis has more left side weight than a superspeedway car, and this allows it to turn in more on a tight track. The wide front and rear tracks provide stability in the turns,

especially if the track is sticky or bumpy, or simply when you have to lean on someone slightly to get



by—something you dare not do with a narrow superspeedway car.

In real one-to-one stock car racing, they use the wide cars for the short tracks and the narrow cars for the superspeedways. It works for them, and I know that it definitely works for us. This is definitely the car for short-track racing!

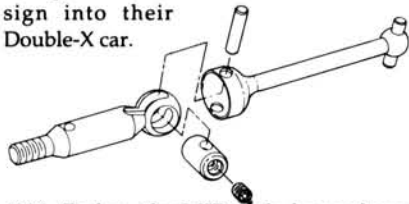
Now, the next time I see you at the track, there will be no excuse for you not to be running an Evolution 10!

See you next time!
Magic



CVDs™ vs. Bones

1992/93: It was the release of MIP Bones that made bones, not sliders, the standard for the Losi SE and LX-T. MIP Bones gave better stability and handling in rough terrain with more acceleration. So successful were the MIP Bones on the Losi cars and trucks that Team Losi incorporated this design into their Double-X car.



1994: Today, the MIP-style bones have become antiquated, and no longer meet the standards of the '94 racer. MIP-style bones utilize a plastic U-joint at the axle ends of the bone. While this style does work, there are flex and reliability problems. MIP, being first in design and technology of drive systems, is constantly working to develop and improve the performance of R/C cars and trucks. Seeing that the drive systems needed to go a step further, Eustace Moore has now designed his World-winning CVDs™ (Constant Velocity Drives) for the Losi cars and trucks. MIP CVDs™ are machined entirely of steel and are hardened for strength. Unlike common U-joints, CVDs™ are completely rebuildable. CVDs™ are not only stronger, but also noticeably smoother than bones and common universals. Always looking for maximum performance, while concentrating on the sheer fun of racing, makes MIP's CVDs™ the New Standard for 1994.

MIP CVD™ Maintenance Tips

CVDs™ are easy to maintain. After about 12 runs on your car or truck, disassemble CVDs™ and wipe clean. Spread a thin layer of CVD™ Lube on the couplings and insert back into the axles. (Lube comes with the kit and can also be purchased separately.) Reassemble CVDs™. We suggest that you use Loctite on the setscrews. After rebuilding for the third time, we advise you to purchase new hardware. (CVD™-13 for Losi, CVD™-6 for Associated and #1062 for Traxxas.)

Good luck racing!

MIP—Race With Us.

Moore's Ideal Products
746 E. Edna Pl.
Covina, CA 91723
(818) 339-9008

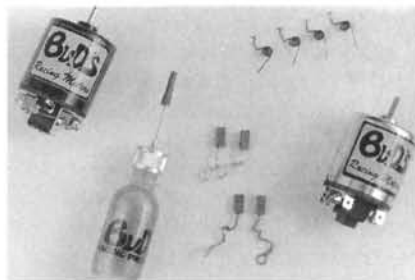
WHAT'S NEW

BRP

Racing Motors

BRP offers every type of motor from super stock to top-of-the-line, hand-wound modifieds, and they also have a full line of brushes, springs, racing oil and power drops. To check out all they offer, send \$2 and an SASE (52 cents postage) for a catalogue and decals.

BRP Inc., 1575 Lowell St., Elyria, OH 44035; (216) 284-0270.



ASSOCIATED ELECTRICS



RC10 Worlds Car

The RC10 won three IFMAR world championships; the RC10 Worlds Car is even better! It took eight of the top 10 places at the last Reedy Race of Champions. This state-of-the-art car has an *all-new* hard-anodized, pre-milled chassis, graphite front and rear shock

struts and Teflon-sealed shocks, stronger suspension arms, graphite tranny brace, Pro-Line XTR tires, RC Performance Specialties Turbo Mirage Lexan body, Stealth tranny, bushing bellcrank steering, silicone shock oil—and much more!

Part no.—6037; price—\$337.

Associated Electrics Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626; (714) 850-9342; fax (714) 850-1744.

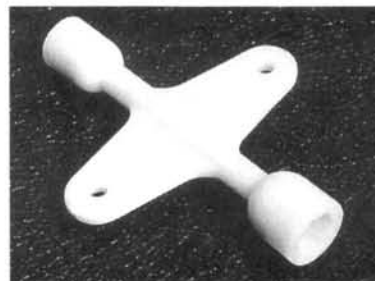
RPM

Wheel and Shock Nut Wrench

For Associated cars and trucks, this small, double-ended, spanner-type wrench comes in two socket sizes. One end fits the rear wheel nuts, and the other fits the front wheels and the nylon upper shock-mount nuts.

Part no.—7098; price—\$4.95.

RPM, 14978 Sierra Bonita Ln., Chino, CA 91710; (909) 393-0366.



MIP

Super Diff-Rebuild Kit

Here's something for the Double-X transmission—a rebuild kit that includes



super-hard, super-round carbide balls; smooth, polished diff rings; and long-lasting, no-grit diff lube. MIP promises twice as many runs between rebuilds.

MIP, 746 E. Edna Place, Covina, CA 91723; (818) 339-9007.

TAMIYA AMERICA INC. Jeep Wrangler Q.D.

There's no assembly and nothing extra to buy, so here's an ideal intro to the world of R/C cars. Just like the full-size Jeep, this tough customer on giant, 4½-inch tires will handle any terrain. Its monocoque-type engineering plastic frame is topped by a tough, light, impact-resistant, red, injection-molded body with an open cockpit, bucket seats and a roll bar. There's a pistol-grip, wheel-and-trigger, 2-channel radio; a battery charger; a supply of rechargeable Ni-Cds; and a 9V transmitter battery. A powerful Q.D. truck motor and heavy-duty coil suspension make high-speed runs and hill climbing part of the package. Specifications: weight—4 pounds; length—14 inches; width—10 inches; wheelbase—7½ inches. And there's a 90-day warranty and a toll-free number to call for tech support and to order parts.



Part no.—46017.

Tamiya America Inc., 2 Orion, Aliso Viejo, CA 92656-4200; (714) 362-2240; fax (714) 362-2250.

DYNAMITE

Nissan NPT Gas-Car Body

Here's the first—and only—body designed specifically for a hot new type of racing—1/10-scale on-road gas. Based on the NPT91 electric car body



and made of 0.040 Lexan, this highly detailed gas version has a wider front to fit the wider gas-car chassis. Gas cars reach high speeds, so having a body that increases

stability is vital; this one has a greater rear kick-up angle to increase down-force and therefore stability. It's a dynamite body from Dynamite!

Part no.—Dynamite NPT 1/10-scale gas-car body.

Dynamite; distributed by Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511.

Team NOVAK TEAM SECRETS

SERIOUS PERFORMANCE



Getting ready for a big race? Going to the World Championships and Nationals? **Check out the new Hammer Pro ESC.**

The Team Novak engineers have designed a speed control capable of replacing the World Champion 410-HPc. The **Hammer Pro ESC** is our highest performance speed control **ever**.

The newest generation of HYPERFET transistors were added to provide the lowest voltage drop ever, **just 0.0014Ω**. The brakes have been tuned for maximum performance, **120 amps** of fade-free braking power.

Completely new current limiting circuitry, **CLC II**, has a faster response time which **attacks amp spikes** quicker so that less power is wasted, and provides ultra smooth traction control on slippery tracks.

Feedback from our Team Drivers showed that 20 to 80 amps was the best range of adjustment for track conditions. So, we calibrated CLC II to make adjustment more **precise**. And, for **maximum punch**, a new "OFF" position bypasses the limiting circuitry completely.

Of course, we added One-Touch Set-Up for easy and accurate adjustment. Serious racers will benefit from the increased precision of the neutral, high speed, and brake settings. For special situations, Pro Tuning tips are included in the instructions to fine tune the One-Touch system.

Next month we'll cover more of the new safety and performance features found on the Hammer Pro. Until then, check out our new ad and look for the Hammer Pro at your local hobby dealer.

Team Novak welcomes your comments and secrets!

NOVAK ELECTRONICS, INC.

18910 Teller Avenue, Irvine, CA 92715

• (714) 833-8873 •

STRAIGHT SCOOP

With the *awesome* 411-P2 and 411-G2 speed controls, you will have **extreme horsepower**. If there is too much bottom end, you could go to a milder, less efficient motor; or you can alter the balance of the low-end to high-end throttle response with the Exponential (EXPO) control on your transmitter (if it has one). Adjust the EXPO a small amount until the trigger provides the best balance between the low-end and the high-end. When done correctly, there will seem to be a little more mid-range power and driving will become easier.

Sometimes people will ask if they can use a Schottky motor diode with their Tekin speed control. The answer is yes, but it is not required. All Tekin speed controls have a Schottky diode built in. This means convenient installation, brakes that always run coolest, cooler running motor brushes (without a motor diode present), and better load handling. The throttle FETs stay cool, because the speed control's diode is away from them.

If you do wish to use or have a diode on your motor, make sure you remove or replace the diode if you connect the speed control backward, as the motor diode will burn out, and may short. We do recommend a motor diode when running dual motors, or more than 12 cells. (Part # SCH500).

Check out our new battery chargers, especially the 112 series. **They are hot!** (*But they run cool*). With the astonishing Power-Flex circuit from Tekin, the 112's actually measurably lower the resistance of your cells. This makes your cells run cooler and **last longer**. Cells charged with Power-Flex deliver more horsepower, and racers can actually feel the **power gain**. With all the winning features, and value price, the BC112 pro charger is the way to go.

...
Team
TEKIN

WHAT'S NEW



PRO-LINE

XTR Road HAWGS

If you want durable, high-traction tires for running on unprepared concrete or asphalt, get yourself some Haws! For the RC10L, Evolution, Cobra, Bolink and Lynx, try Road Hawg I rear tires and Road Hawg III front tires with Pro-Line's direct-fit, cone-dish racing wheels. They convert any on-roader into a mean street machine.

Part nos.—1061 (Hawg I for 2-inch rears), 1063 (Hawg III for 2-inch medium front tires); **prices**—\$12.50, \$11.50.

Pro-Line, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; fax (909) 849-2968.



T.M. R/C RACING COMPONENTS

Magnum Pro-10 Plus

Here's a tire conditioner that will help your cap tires work the way they were meant to. Your car will also be easier to set up, and you'll notice an improvement in acceleration and control—especially through the corners.

Part no.—2480 (48 fluid ounces).

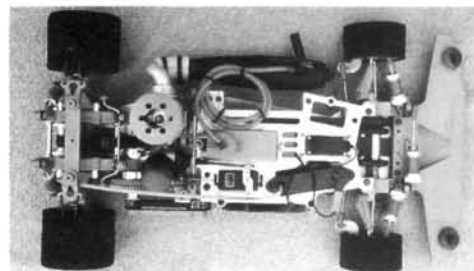
T.M. R/C Racing Components, 49679 Leona, Mt. Clemens, MI 48045; (313) 949-3506; fax (313) 949-3506.

RACER'S CHOICE

"Active" Gas-Car Kit

This new BMT 4WD, 1/8-scale, on-road, gas-car kit has most of the features found on BMT's world champ 891 and 933 Series, plus: dynamic rear toe-in that's activated by the rear suspension travel; convenient, screw-on pistons; quick-change tires; stronger 2-speed tranny; 6mm-thick, CNC-machined-aluminum racing chassis; triple-shock front end; and infinitely adjustable front-arm caster angle.

Racer's Choice, 6N258 Acacia Ln., P.O. Box 405, Medinah, IL 60157; (708) 980-4863; fax (708) 980-4520.



BARRACUDA PERFORMANCE

Titanium Stealth Outdrive Sets

New for high-performance Associated racecars, these outdrive sets weigh 9.8 grams a pair—only half the weight of the stock tranny outdrives. That's a serious reduction in rotating mass, and national oval champ Brian Landgraff won't run a race without them.

Part no.—BCA3020.

Barracuda Performance, P.O. Box 126, Glasgow, MT 59230; (406) 228-4569; fax (406) 228-4569.



KIMBROUGH PRODUCTS

Tire Horn

Not strictly a new product, but too useful not to remind you about! Made of a plastic that resists most solvents, a tire horn can be used to stretch a foam-rubber tire donut onto a wheel. Mounting and gluing has never been so easy! Complete instructions are included.

Part nos.—104 (for 1/8- and 1/10-scale wheels), 105 (for 1/12-scale wheels).

Kimbrough Products, 1322 Bell Ave., Unit 1-C, Tustin, CA 92680; (714) 258-7425; fax (714) 258-7426.



CALANDRA RACING CONCEPTS

Speed Juice Motor Additive

Team CRC claims these are the best comm drops on the market (they did, after all, win the Cleveland Indoor Champs and the '94 ROAR 4-cell Nats using them). Speed Juice reduces brush glaze and carbon buildup, so your motor works more efficiently—more power during an entire race!

Part no.—5004; price—\$4.99.

Calandra Racing Concepts, 6860 Stanwix Ave., Rome, NY 13440; phone and fax (315) 338-0867.



Descriptions of new products appearing on these pages were derived from press releases supplied by the manufacturers and/or their advertising agencies. The information given here doesn't constitute an endorsement by **Radio Control Car Action**, nor is it a guarantee of product performance or safety. When writing to the manufacturer about any product described here, be sure to say you read about it in **Radio Control Car Action**.

CONFUSED?



"What do I want? Is this what I need. Is this required or just optional? It seems there are so many choices - it is positively overwhelming. Basically, what am I gonna do? All I want is to pick up a good R/C vehicle - but I'm so confused I think I'm gonna puke."

Does this sound like you?

Now, your search is over. Stormer Racing is publishing a new catalog with complete listings of every product we sell, tons of photos, interesting and funny editorials, and ... feature stories of what's new and what's hot.



Call
Today
For
Your ...

FREE R/C CATALOG

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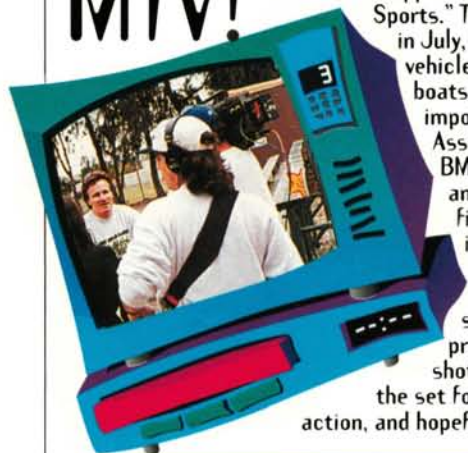
INSIDE SCOOP

by CHRIS CHIANELLI



IN SEARCH OF FUN AND GLORY, 'CAUSE LIFE'S TOO SHORT TO BE A SHEEP!

You got
your
MTV!



Did you see some familiar R/C faces on MTV last month? Well, you might have seen Team Associated rockin' it out on the airwaves. Cliff Lett, Mark Pavidis, Scott Hughes and B.J. Christensen appeared on the hit show "MTV Sports." The show, which first aired in July, featured all types of R/C vehicles—including helicopters, boats, airplanes and, most important, trucks! The Team Associated crew hit a local BMX track with their RC10Ts and RC10GTs and wowed the filming crew with some intense double and triple action over some of the track's larger jumps. The segment also featured some pretty wild "in-truck cam" shots. Keep your eyes glued to the set for some prime-time R/C action, and hopefully you'll see some reruns!

INJECT THE JUICE!

When you go in for a pit stop, you want to be sure to get a full load of fuel in the minimum of time, and ProStar's Bazooka Fuel Gun is just the ticket. It holds more than enough for a full tank and fills in a matter of seconds. As fuel drops out of the gun, air enters through small metal tubes. When the fuel tank is full, the air-inlet tubes close to stop the fuel flow, and that means no messy overflow! Nothing could be easier. The ProStar Bazooka Fuel Gun is available from Savon Hobbies, (305) 634-8959, for \$49.99! For more info, dealers can inquire at Pan America Intl. Inc., (305) 635-3134.



RAM & the Main Man



Parma International president Ken MacDowell (left) and NASCAR driver Mark Martin holding two versions (1/10- and 1/24-scale) of the officially licensed Valvoline T-Bird manufactured by Parma.

This great-looking Dodge Ram, voted Truck of the Year by *Motor Trend* magazine, is now being manufactured under license in 1/10 scale by Parma Intl. This scale beauty can be mounted on a narrow pan chassis or on a monster truck chassis for one nasty crusher.



Here comes the Judge

—the irreverent Judge Anderson, that is. I figured the beautiful judge, fellow crime-fighter of DC Comics' Judge Dredd and Judge Death from 2100 AD, would be the perfect consultant to help me decide what is exceptionally awesome, and what is not! After all, she's pretty, pragmatic and takes no crap! So, from here on, if you see her pictured with a product, you know it's really special in one way or another.

It's such a relief to have "Her Honor" by my side 24 hours a day to help me out with those dangerous decisions. She does, however, hog the TV remote control. Rumor has it MRC will be offering a 9-inch vinyl kit of the gorgeous judge, so the rest of you can place her image in your favorite room, thus supplying inspiration and courage in times of self-doubt. Be warned, however, at all times, the honorable Judge Anderson retains the right to summon you to her chambers. If you're lucky, she'll sentence you to hard labor.



Rich's Rods

Richard Muise (Sergeant-Major-Motorhead) of Motion Graphics is now offering complete, ready-to-run street rods in a variety of styles. These classics range in price from \$295 to \$595. All feature Futaba radios, high-performance motors and concealed antennas. Many versions have electronic speed controllers and working headlights and taillights.

If you already have your own chassis and running gear, let Rich fix you up with a dynamite "Street is Neat" custom-painted body. Call (410) 848-0008, and ask for Sgt. Maj. Motorhead.



Raytech Raygun

"I don't need that thing. It's only for gas racers to tell how hot their engines are...blah...blah...blah...." Listen for a minute, and I'll let you in on a little secret. Yes, it's well-known that this little device—the Raytech ST2-L temperature probe—can measure your nitro engine's temperature and tell you whether it's running too lean, but it can also handle a few other R/C-related tasks.

Slap on that larger pinion gear and gear up your electric motor, and the ST2-L will tell you whether you've over-gear-ed and are frying your motor.

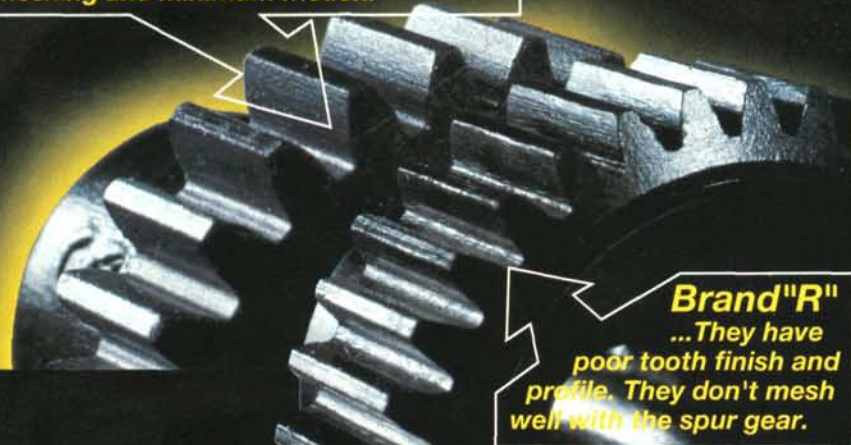
Ever been curious about how much your on-road tires really heat up, or how hot your ESC really gets? Zap it with your temp gun and find out.

And there's more: the Raytech ST2-L is available from Racer's Choice at a low price; and it comes with a new nose cone for accurately reading engine-cylinder temperatures; and it's available with a backlit LCD display so you can read temperatures at night—just in case you're at the track when the sun goes down.... But aren't we all? Call Racer's Choice at (708) 980-4863.



ZeroGravity™ Pinions

Trinity Pinions...Ours are precision machined from 6061 T-6 aircraft aluminum and teflon impregnated for smooth meshing and minimum friction.



Brand "R"
...They have poor tooth finish and profile. They don't mesh well with the spur gear.

Trinity Zero Gravity™ Pinions Are Super Light!

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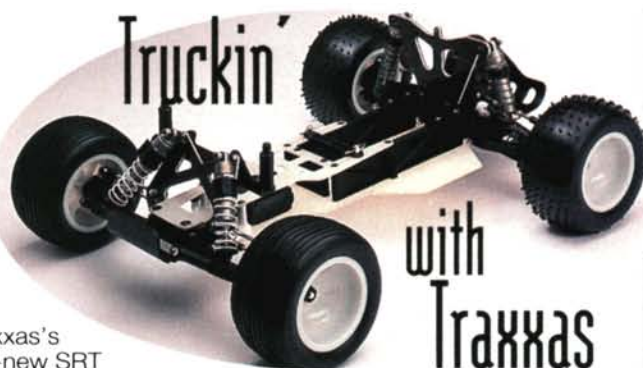
© Trinity Products, Inc, 1993

RPM for the RC10

Here are two new ones from RPM for Associated's off-road vehicles. For the RC10GT and RC10T are these heavy-duty axle bearings and dyeable carriers that can take the added stresses that today's modified racing trucks can dish out. The bearings are shielded stainless and, according to RPM, they have three times the load rating of a 3/8-inch-diameter bearing. The carriers are designed to remove almost all telescoping of the dogbones or universals while lowering the center of gravity.

Also shown is the new Stealth Tranny Conversion for the oval RC10 and RC10T, consisting of a new case and upper shaft. The stock bearing, differential and center gear fit the new case. This is a bolt-on modification that requires no cutting or drilling.

Designed using gear ratios called for in high-speed oval racing. Not recommended for off-road! Contact RPM, 14978 Sierra Bonita Ln., Chino, CA 91710; (909) 393-0366; fax (909) 393-0465.



Traxxas's all-new SRT

racing truck comes with a

unique attribute: its parts are guaranteed not to break. If you do break a part, just mail it back to Traxxas with a brief description of what happened, and wait by the front door for your new part to arrive via Burt, the friendly UPS man.

The truck features the new Zero-Flex composite chassis, which uses a dual-plane structure for lightness and rigidity, and there's an all-new transmission that has a final drive ratio of 2.72:1. For smoother, freer operation, the transmission

incorporates a new, dual-ball-bearing differential.

Traxxas claims that with this new diff, the truck launches off the line and comes out of turns faster.

Among the truck's other new features are hard-anodized, Teflon-coated shocks and a heavy-duty steering bellcrank system that eliminates bump-steer. The kit comes with socket-head hardware and Pro-Line XTR compound racing tires. Looks like there's a new truck on the tracks. Now, let's see what the competition is prepared to do!

GET A GRIP.

Gettin' sideways is cool if you're running dirt oval, but if you're racing on carpet or asphalt, it doesn't cut it!

To improve foam tire performance on hard surface tracks, the race team worked with the chemical engineers at Trinity to develop Zip Grip™, a custom, hand blended R/C foam tire traction compound.

Using Zip Grip provides the most precise and repeatable tire performance on carpet or asphalt R/C racing tracks, of any formula available today. And, the new style applicator keeps the Zip Grip on your tires and off your hands.

So if you've been getting entirely to familiar with the turn marshals, it's time to "get a grip" with Zip Grip!

TRINITY®

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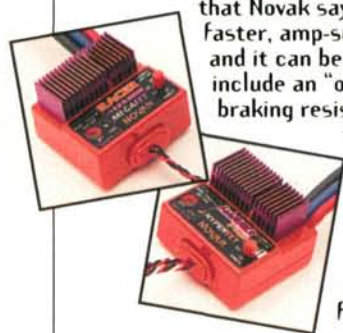
Mod-Man of the Month



The things I get in the mail you wouldn't believe. Here's one: a picture of Novak Electronics' project manager and race team technical trouble-shooter Tyree "Linc" Phillips. No, Tyree is not accepting an award for the best costume at a '70s nostalgia party; he actually received the trophy back in the '70s for winning at a 1/12-scale event. This guy has been racing for a very long time. Worry not, Tyree, many of us share in the embarrassment of the '70s. Remember double-knit leisure suits? Totally hatin' it.

Also from Novak are these two new one-touch electronic controllers. First is the Hammer Pro ESC[™], which replaces the 410c Hyperfet and is now the top of the Novak line. Used by the top Novak team drivers, the Hammer Pro features a new current limiter that Novak says is the best ever. It has no-lag, faster, amp-surge sensing, it's easy to adjust, and it can be completely shut off. Specs include an "on" resistance of 0.0014 ohm, braking resistance of 120 amps and dual-level thermal overload protection.

Designed for sport drivers ready to try some competition, the new Racer ESC[™], which replaces the M1c, has everything that's found on the Hammer Pro except the Hyperfets. Watch for full reports.



TRC's 10LG

TRC is hot on the gas car racing scene with this conversion kit for the Associated 10L. When completed, the 10LG has a slightly longer wheel-base (3/8 inch) for extra stability, and the car's finished weight is just slightly more than that of the electric version. The throttle servo is mounted on a plate that moves with the rear pod, and that setup eliminates any throttle/brake linkage movement during suspension travel, both front to back and side to side.

The kit uses a standard 32-pitch spur-and-pinion gear combination (a full range of pinions is available); and the pinion gear can be changed separately from the clutch bell to allow numerous gearing options. The kit comes with a two-shoe racing clutch, and a 75cc fuel tank provides enough capacity to hit the track and stay on it for quite

a while. The 10LG comes as a basic kit without the engine, carb, or muffler, but it comes with everything else you need; and you can also buy the kit with either a Dynamite .12 or an O.S. .12 engine.



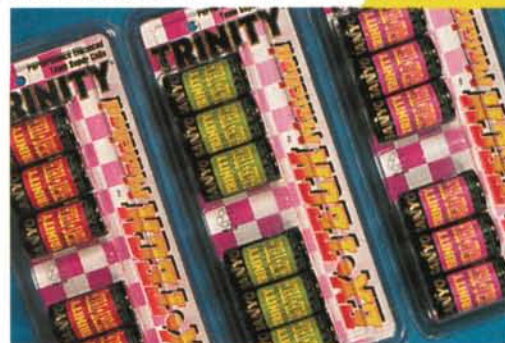
Rugged Road Rubber

In the September '94 "Scoop," I showed Pro-Line's new Road Hawks for 1/10-scale buggies and on-road cars. Pro-Line now introduces the new soft-compound Truck XTR Road Hawks for 2.2-inch truck wheels. The

XTR Road Hawks feature low-profile and directional tread design. For more info, contact Pro-Line, P.O. Box 456, Beaumont, CA 92223; (714) 849-9781; fax (714) 849-2968.



TRINITY'S EX•TECH MATCHED BATTERIES



Hey you...yeah, you, stupid. You need new batteries for your car. Well, pay attention. The inside word on these new EX•Tech cells comes direct from the Trinity headquarters: "We have an abundance of good cells because of our massive buying and cycling power. Frankly, we have more good batteries than we can use." While some of these killer cells are held for team use, a vast majority are being made available to the public under the EX•Tech banner. So no more talk of "I can't go fast because the team guys get all the good stuff." Now Trinity is doing something about that. The EX•Tech batteries come in three fashions: Sport•Tech—cells designed for people who basically use stock motors and don't compete against the likes of a Joel Johnson; Race•Tech—cells for someone a little more serious about their race efforts; and then World•Tech—cells that have only one goal in mind: winning races.

READERS' RIDES

"Readers' Rides" is our way of recognizing the unique, innovative—and sometimes bizarre!—vehicles that our readers have created. Send us a sharp, uncluttered, well-exposed color photo of your car or truck (no Polaroids, please!), along with a brief description, to Readers' Rides, R/C Car Action, 251 Danbury Rd., Wilton, CT 06897. If the Ayatollah of Radio Controlla chooses your photo, you'll receive a 1-year subscription to Car Action, or an extension of your existing subscription. You'll also be eligible for the fourth annual "Reader's Ride of the Year Contest" in the fall of 1994. Write your address and phone number on your letter and on the back of each photo you send, in case we need to contact you.

LIGHTNING STRIKES

This wild-looking Associated/Composite Craft 10L SS belongs to Robert "Mad Dog" Bohigian of Daly City, CA. Robert has modified the car with miscellaneous HPI graph-ite parts, the new Associated independent-suspension front end with titanium rods, a Novak speed controller, an Extreme Motorsports modified motor and Panasonic P-170 batteries. A Magic Motorsports and Robinson Racing gearing combination turns a T&A titanium axle, and a Bolink body that Robert painted tops it all off.



STOCKERS

The father/daughter team of Larry and Tiffany Weisel of Front Royal, VA, sent us this photo of their two Traxxas trucks. Larry's LS-II is painted like Dale Earnhardt's NASCAR stock car, and Tiffany's Hawk II is done up like Davey Allison's NASCAR ride. Larry's truck is equipped with Pro-Line Striker II tires, a Trinity Monster Horsepower stock motor, a Tekin 420 speed controller and 1400 SCRC Point Blank batteries, and it's controlled by a Futaba Magnum Junior radio. Tiffany's truck is decked out with Pro-Line Striker II tires, a Trinity Monster Horsepower stock motor, a Futaba MC112B speed controller and a Magnum Junior radio.



MINI BLAZING INFERNO

Marc Theriault of Ottawa, Ontario, Canada, sent this photo of his Inferno 10—the latest addition to his Kyosho family. It's equipped with an O.S. CZ-R with a Kyosho tuned pipe, and it's fed fuel through Aerotrend fuel tubing with a Du-Bro 340 fuel filter. He controls the car with a Futaba Magnum Junior, two 9301 servos and a Sanyo 600mAh receiver pack. He used Pactra trim tape and Pactra Indy red and silver spray paint to deck out his Inferno.



INDIGENOUS CRANK

Paul Sylvia of St. Charles, MO, sent us this photo of his tricked-out Clod Buster, "Indigenous Crank." Based on an ESP Clodzilla aluminum chassis with a multi-link suspension kit, Paul's Clod has eight oil-filled shocks with extended shock mounts. The electrical system consists of a Novak 610 R reversing ESC, a Missing Link dual steering servo, a PCM receiver and two Trinity motors. The truck is controlled by a JR Alpina radio. The body is graduated from dark blue to sky blue to white, and the foam-filled tires ride on chrome-plastic wheels.

READERS' RIDES

BITCHIN' BENZ

This sharp-looking Tamiya Mercedes-Benz 190E belongs to Bryn Scott of Lahaina, HI. The car is equipped with a Trinity 11-turn triple Topaz modified motor, a Novak 410 M1 ESC, a full set of ball bearings and an HPI composite chassis. Bryn also modified his car with a set of front and rear sway bars that he pirated from an old Tamiya Avante 4WD off-road car. His radio of choice is a Futaba Magnum 2PD.



ONE TOO MANY?

Need any car parts? Well, check with Mark Betzing of Grand Blanc, MI; he might have what you need! In this photo, Mark sits in his basement workshop with 25 of his 32 R/C vehicles. He says that he's the local R/C mechanic; his friends bring their broken cars to him to repair. We know he must be a good mechanic because he has the perfect set of shop manuals—a library of *Car Action* issues dating back to 1989!



MIP CVDs, RPM ball-bearing steering, Lunsford titanium hinge pins, graphite shock towers, a Losi Hydra Drive conversion kit, Pro-Line tires, Novak electronics, a Trinity Green Machine motor and an A&L body.



GONE FISHIN'

When he's not racing his Losi R/C cars, Ken Karren of West Valley City, UT, goes fishing. In case the fish aren't biting, he brings his Tamiya Mountaineer along for some fun. Ken tells us that it's relatively stock except for the addition of a Tekin 610 R reversing ESC. He controls the truck with an Airtronics Caliber 3P radio. Well, Ken, maybe you can combine your two hobbies and go R/C fishing! Hook up a line to the back bumper of your truck, and as soon as you get a bite, nail the throttle. Hey, it could work!

"TEAM LOSICIATED"

John Williams of Shelby, AL, who goes by the name "Team Losiciated," sent us this photo of his Team Losi Double-X and his Team Associated RC10T. John's Double-X is relatively stock except for Pro-Line Wide Five front tires, Lunsford titanium turnbuckles, Robinson Racing ball ends and ball-bearing bellcrank steering. The car is equipped with a Novak 410 HPC speed controller, an NER-2X receiver and a Trinity Slot Machine 2. The RC10T is tricked out with

TROUBLESHOOTING

by JOHN HUBER

Illustrations by Steve Collins

If you have a technical problem that your hobby shop or racing friends can't resolve, give us a shout at Radio Control Car Action, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to Troubleshooting, Radio Control Car Action, 251 Danbury Road, Wilton, CT 06897. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.

For whom the (clutch) bell tolls



unison, so when the truck starts and idles, it "runs away." I tried putting a spacer between the clutch-bell bearing and the flywheel collet to see whether that would solve the problem, but it didn't. Then I tried several other things, but they didn't work, either. Can you please tell me what to do so I can run the truck again?

GARRET HESS, Bloomington, IN

I called Traxxas to see whether they had a clue about what might be wrong. I was told that you're either missing a couple of shims, or they're in the wrong place. There

should be one silver shim

placed over the crankshaft first.

A black shim should be between

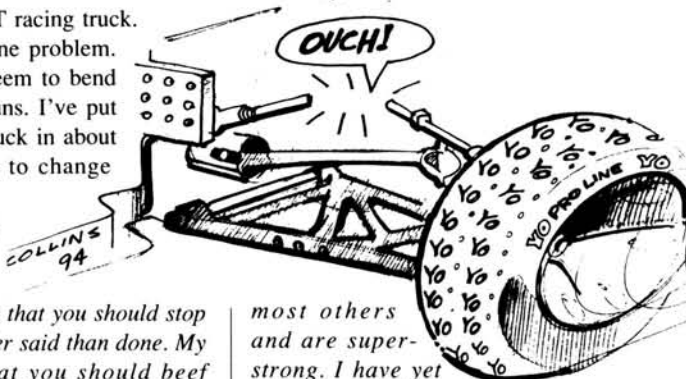
the bearings in the clutch bell. If these shims are in the right places, the clutch bell should rotate freely. If you still have a problem, call Traxxas at (214) 613-3300.

Please help! I have a Traxxas Nitro Hawk with the Thorp O.S. .12 CZ-R conversion kit and lightweight flywheel. Whenever I tighten down the flywheel nut, the clutch bell and flywheel move in

Tie-rod torture test

I bought a Team Losi LX-T racing truck. It runs great, but there's one problem. The rear tie rods always seem to bend or break after about two runs. I've put nine new tie rods on the truck in about four days. What can I do to change this?

SCOTT MATLOCK, Ellington, CT



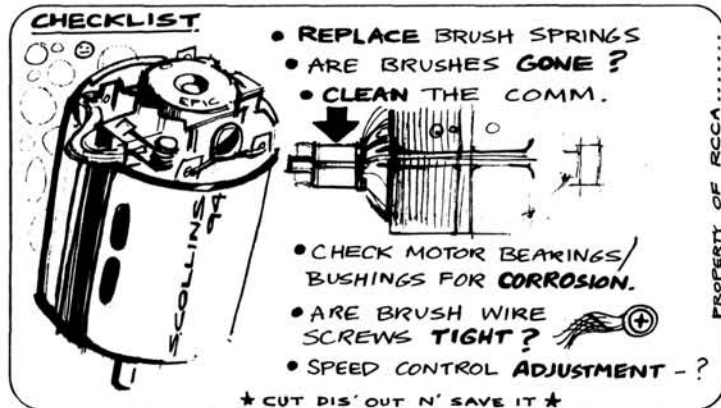
Scott, my first suggestion is that you should stop hitting things! I know; easier said than done. My second suggestion is that you should beef up the tie rods with Lunsford Punisher titanium rods. They have a larger diameter than

most others and are super-strong. I have yet to break one on my truck (compared with about eight I broke before).

Hidden horsepower

I'm having problems that no one can figure out: I have a Hawk 2 equipped with a Futaba 2PB, a DuraTrax 17x3 motor and a Novak 410 M5. I run 7-cell 1400 Dynamite packs. I installed my speed controller, and after about five or six runs,

so that it only runs some of the time, it needs service. If you race, you should check your motor after every run, and if you're out for fun, check it after every dozen or so runs. Does the motor have just 10 runs on it, or is only the



ESC new? Remove the springs and brushes, and look at the comm through the brush hoods. If it's totally black and discolored, it needs attention. For now, you can clean the surface slightly with a comm stick, but if the surface is too far gone, it should be cut on a comm lathe. Some hobby shops or tracks can do this for you, or you can send the arma-

ture to the motor's manufacturer. Basically, the comm's surface should look like the face of a new penny. The further it is away from that shiny condition, the more power is lost and the more problems you'll have. And don't forget the brushes. They should be replaced at least after every 12 or so runs, or when they are badly discolored and worn down. Always use new brushes on a newly cut comm, and break them in.

RUSS GYDE, Hartland, MI

Russ, when a motor starts to get "dead spots"

ture to the motor's manufacturer. Basically, the comm's surface should look like the face of a new penny. The further it is away from that shiny condition, the more power is lost and the more problems you'll have. And don't forget the brushes. They should be replaced at least after every 12 or so runs, or when they are badly discolored and worn down. Always use new brushes on a newly cut comm, and break them in.

Hitting rock bottom

I own a Tamiya Stadium Blitzer. I use a Novak Rooster ESC, a Point Blank motor, front and rear DuraTrax Competition shocks and Trinity 60WT shock oil. When I jump my truck, it always bottoms out, no matter what, so I lose speed off the jumps. The only solution I can think of is increasing its ground clearance. Is there a way to do that, or is there a better way to stop it bottoming out? The chassis is an inch off the ground. Please help!

JOE SMITH, Decatur, MI

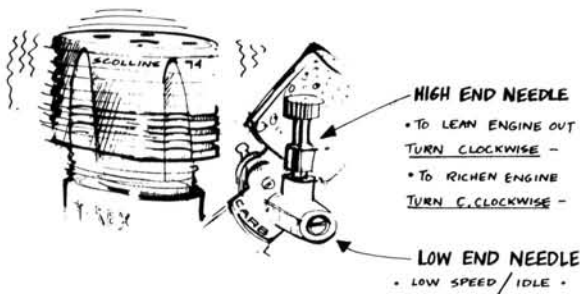
Joe, if the chassis bottoms out too much, you have a problem with the shock oil, not the ground clearance. Using thicker shock oil will solve your problem, but you're already near the top of the shock-oil scale. Look at the instructions for the shocks and determine which shock pistons you're using. Included with the shocks, there were proba-



bly extra pistons that have either fewer holes or smaller ones—use them! Make sure you use the same holes on each side so the damping is balanced. This switch will definitely make a difference, but if you change the pistons, you might also have to use a lighter oil.

If you don't have the other pistons anymore, you can obtain the same result by closing one or more of the holes in your existing pistons with a drop of CA. First, be sure to clean the pistons well so the glue can stick. Keep experimenting until you get the results you're after, and make notes on every change you make!

Needle and pins



I own an 1/8-scale Pirate M-1 with a Rex 350 engine, and I've been having a problem setting the high-end needle. I read "Basic Engine Tuning" in your April '94 issue, and it went over this, but it didn't work for me. Could I be doing something wrong, or is there something else I can do? I'd also like information on how to disassemble the engine; what's best for cleaning it, and what grease should I use when reassembling it?

VINCENT KING, Vallejo, CA

Vince, the easiest way to test the high-end needle setting is with a temperature gun, but I know that not everyone has an extra \$200 to throw around. The next best thing is free! It's spit! Start with the high-end needle at three turns out. When you run the car, you should see a fair amount of blue smoke in the exhaust,

and the top speed should be tame. Start to turn the needle clockwise, an eighth of a turn at a time, and note the performance gain. With each turn, you should see an improvement in speed. Check the engine temp by spitting onto its heat-sink head. (If you're worried about hygiene, use a drop of water from a bottle.) An engine that's too hot will vaporize the water in an instant, and you'll hear it crackle. At the proper temperature, the water will take a few seconds to boil off, and it won't crackle as violently. You'll soon develop a feel for how hot the engine is and how it sounds. Just try to keep it on the rich side to avoid engine damage.

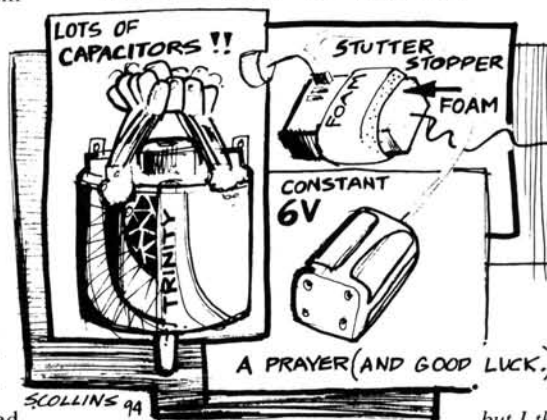
Before disassembling the engine, remove any loose dirt with a brush. Remove the heat-sink head, the back-plate and the flywheel assembly. With the head off, push the piston down as far as it will go. Stick your finger into the cylinder and gently pull the sleeve out with a slight turning motion. When the sleeve is out, wiggle the piston and connecting rod off the crankshaft pin, and the crankshaft will slide out. To remove the bearings, heat the case in the oven at 300 degrees. Grab the case with a pot holder, and tap it on a wooden surface. If the case is hot enough, the bearings will drop right out. To clean the case, use a toothbrush and soapy water; clean the bearings with motor spray. Coat its parts with an after-run oil, then reassemble the engine.

Band on the run

THE SOLUTION.....

I have an RC10T Team truck with a Novak 410-M5 speed controller and a Futaba Magnum Junior radio with a 112JE receiver. I also have a Reedy Force I motor with three capacitors. I experience a lot of glitching. Would a non-BEC receiver (such as a Novak NER-2X) help to solve this problem? Or would a Novak Stutter Stopper help? The speed controller's instructions say I should mount my receiver on the shock tower. Is this true? If I were to get an NER-2X, would I need a receiver battery pack? How would I charge a receiver battery pack? My last question is this: can I use crystals from the 27MHz band on my radio if it came with 75MHz crystals? Can you help?

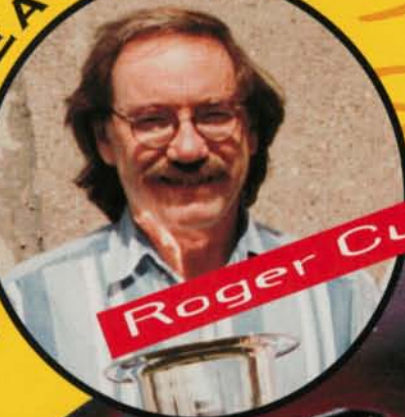
BRIAN ANNICHARICO, North Syracuse, NY



Glitching is usually caused by a motor generating a lot of electrical "noise." If your motor is in good shape, try moving the receiver to the shock tower according to the instructions. If this doesn't solve the problem, try a different receiver, but have yours checked first to see whether it's working properly. If you use an NER-2X, you don't need a separate Stutter Stopper might help, too,

but I think it's mainly for a problem of voltage loss to the receiver when you punch it. Radio interference can also be caused by a worn servo motor. With the car turned off, turn the wheels to move the steering servo; if it feels tight, its motor could be worn and could be causing electrical noise. As for the crystal question: no, you can't use 75MHz with a 27MHz because a 27MHz receiver can't be tuned to work with 75MHz crystals. ■

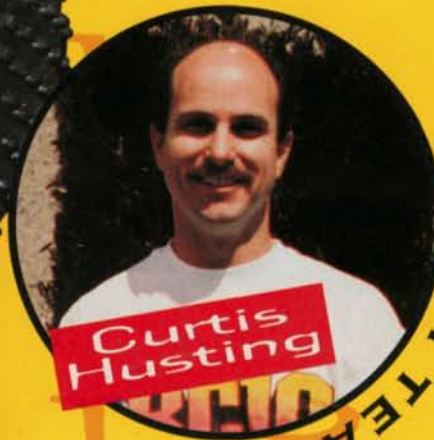
DESIGN TEAM



Roger Curtis



FOR THE past three years, the crew here at *Car Action* has picked the Truck of the Year. In 1991, Team Losi's JRX-T was unanimously chosen as the winner. This specially designed racing truck was the first of its kind, and during its first year out on the tracks, it was virtually dominant.



Curtis Hustling

DESIGN TEAM

4
4
Photos by Walter Sidas



CLIFF Lett

DESIGN TEAM

TRUCK of the YEAR

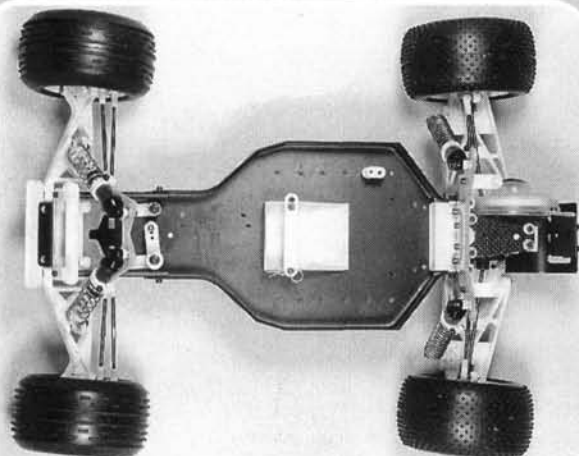
DESIGN TEAM



Gene Husting

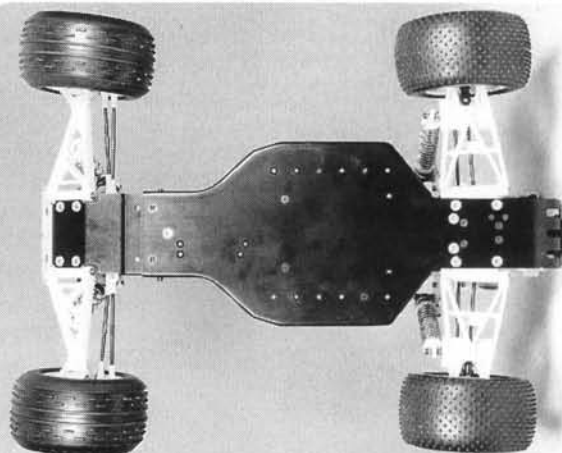
by
John
Howell

Chassis·Chassis·Chassis·Chassis.



The RC10T Team Truck features an aircraft-grade aluminum chassis that's based on that of its brother—the popular Associated RC10 buggy. The chassis are similar in that they feature raised sidewalls and two nose-brace tubes that add rigidity. A narrow, front nose piece is bolted onto the front of the chassis so that long, front suspension

arms can be used. The nose piece has also been placed farther forward than it is on the buggy because the wheelbase has been extended to increase stability. Over the years, the chassis has proven itself on tracks all over the world. Racers have found its light weight and durability to be its key features.



When it came time to vote for our 1992 Truck of the Year, a new stadium stomper—Team Associated's* RC10T—had entered the fray. Based on the winning RC10 buggy design, the RC10T debuted at the '91 Florida Winter Champs, and it took the first and second spot in a field of Losi

JRX-Ts in the Modified Truck A-Main—not bad for its first outing. We voted it the leader in its class that year.

After the introduction of the RC10T, Team Losi retaliated by producing one of the most technologically advanced racing trucks on the market—the LX-T. At the '92

Florida Winter Champs, Team Losi swept the first three positions with the truck and had a total of seven LX-Ts in the A-Main. After a year of continued racing success, Team Losi claimed bragging rights as we voted the LX-T our 1993 Truck of the Year.

Team Associated evened the score by refining the RC10T and turning it into a Team Truck version that includes 17 upgrade items—mostly items that were previously found only on factory-drivers' trucks.

Since then, Losi and Associated have battled back and forth to prove whose truck reigns supreme. Throughout the racing season, we've kept a close eye on both machines and have found that the RC10T Team Truck is the one to beat this year. The combination of the upgrades from its predecessor and its current track record cinched its victory in our minds.

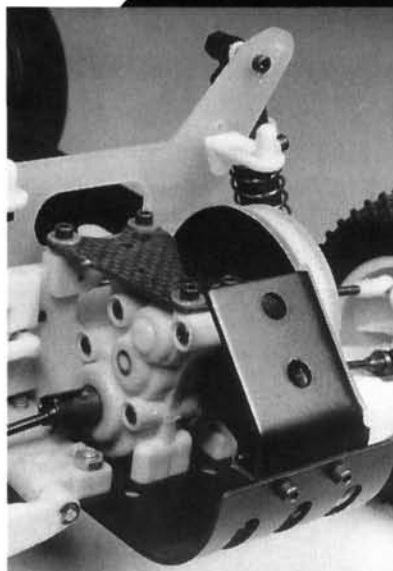
So let's take a closer look at the 1994 Truck of the Year.

FACTORY RIDE

The Team Truck version of the RC10T is a state-of-the-art piece of machinery. What you get with this truck is what Cliff Lett, Mark Pavidis, Scott Hughes and the other top Associated drivers use on racetracks across America. How does this truck differ

(Continued on page 32)

Transmission.....



The Stealth transmission is the heart of the Team Truck. The tranny is a three-gear unit with an output ratio of 2.25:1. Its differential is at the bottom of the tranny, and this lowers the center of gravity. The diff action is very smooth, and the Stealth comes equipped with a friction-type slipper that prevents wheelspin. The tranny also comes with ball bearings for a smooth ride, and the diff outdrives are attached to the truck's dogbones, which helps provide precise diff action.

Wheels and tires...



The original version of the RC10T came with three-piece wheels that could be reused whenever you needed a new set of tires. Since then, Associated has switched to a lighter, one-piece wheel design for better performance. With the one-piece wheels, you usually have to glue the tire to the wheel so, unfortunately, you have to buy new wheels every time your tires fade off into the sunset. It's really hard to pull them off cleanly. You could try

to boil the glued tire and wheel to get the tire off, but some find it's not worth the hassle, and they spring for the new wheels.

The tires that were included in the old kit were perfect for bashing around in your backyard, but when it came time to hit the track, they were usually the first to go. Most racers found that mini-pin tires were the hot ticket on most surfaces, so Associated began adding Pro-Line XT-compound mini-pins in all the new Team Truck kits.

Racing-Truck Roots

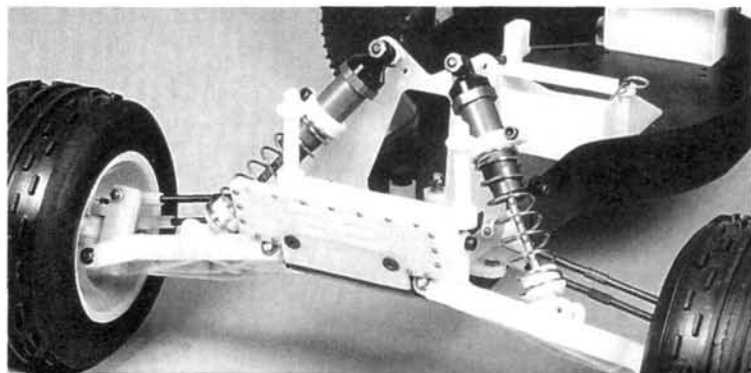
Back in the old days of R/C (you know, way back in 1987 and '88), people who wanted to race trucks had very few options. Actually, there were only two options: you could modify your Tamiya Blackfoot or Marui Big Bear with just about every hop-up part imaginable so it would get around the track as fast as possible, or you could change your Associated RC10, Team Losi JR-X2 or Kyosho Ultima into a racing truck with either a JG Mfg. or a Pro-Line conversion kit.

When people converted their buggies to

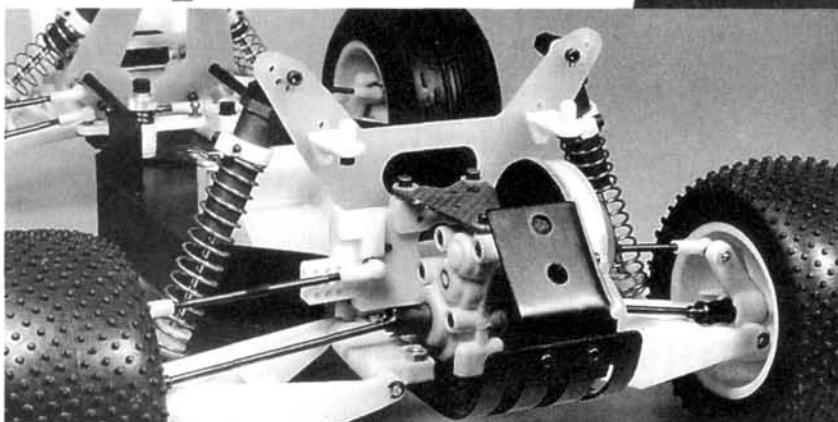
trucks and truck racing began to become popular around the country, manufacturers started to pay attention to this quickly growing class. Soon afterward, Team Losi entered the racing-truck market with the first competition-ready, "out of the box" truck—the JRX-T.

This was quickly followed by a swarm of Associated RC10Ts, Traxxas Hawks and Schumacher Shotguns. Since the late '80s, truck racing has become one of the premier classes in which to race in the United States. Long live the pickup!

Suspension.....



Suspension...



The 10T Team Truck's suspension is another highlight. The truck is equipped with new front and rear suspension arms that are extremely rigid. Hard-anodized shocks with Teflon-coated internal components grace all four corners. Associated's new shock pistons (no. 2 for the rear and no. 3 for the front) now come with the kit.

A SPECIAL MESSAGE TO RETAILERS

Imagine the benefits of drawing many more regular customers into your store every month.

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Mark Pavidis's Winning Setup

Fresh from the Winter Champs Modified Truck A-Main win, Mark Pavidis's 10T is the one to beat. Here's how Mark set up his truck for the Florida race, which is very close to the basic setup that he uses at almost every track he races on.

Electronics

Steering servo—Airtronics 94151
Receiver—75MHz Novak NER 2X receiver with Airtronics plug
ESC—Novak HPc
Batteries—Reedy 1700 SCRCs (six cells)
Motor—Reedy Sonic 13x2 modified motor

Front suspension

Shock oil—35WT
Pistons—Associated no. 3
Springs—Associated Blue
Front toe-in—0 degrees
Net caster—30 degrees
Camber—2 degrees negative
.031-inch shock limiter inside shock body

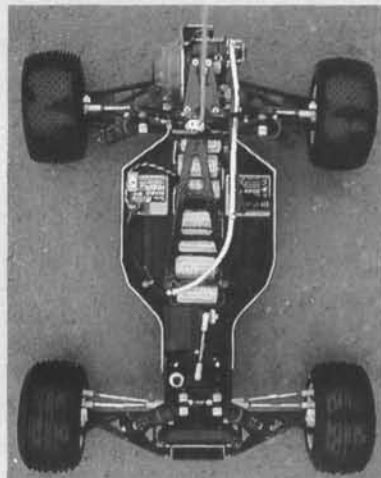
Rear suspension

Shock oil—30WT
Pistons—Associated no. 2
Springs—Associated Blue

Anti-squat—3 degrees
.125-inch shock limiter inside shock body

Tires

Front—Pro-Line 8065
Rear—Pro-Line mini-pin



Gearing

Pinion—16-tooth
Spur—87-tooth
Standard slipper



from the original 10T? Well, here's what's new, starting from the rear of the truck and working forward:

- lightweight, one-piece rear wheels;
- Pro-Line's* XT compound mini-pin rear tires;
- universal-joint drive shafts;
- 0-degree toe-in rear-hub carriers;
- 3-degree toe-in rear-suspension arm mounts;
- more rigid rear suspension arms;
- stiffer rear shock tower with additional camber-rod mounting holes;
- no. 2 pistons for rear shocks;
- graphite tranny brace;
- stiffer front shock tower with additional camber-rod mounting holes;

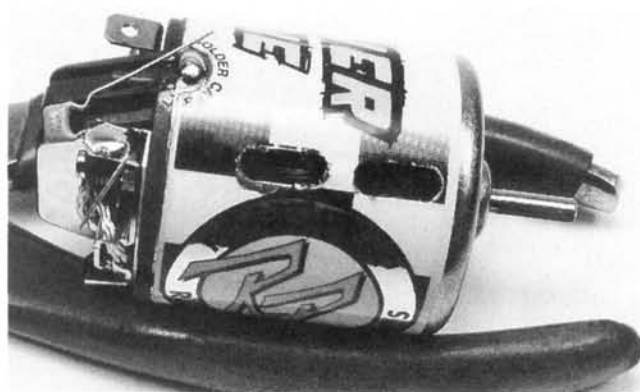
- more rigid front-suspension arms with additional shock-mounting hole;
- 30-degree caster blocks;
- stronger steering blocks with aluminum axles;
- one-piece, lightweight front wheels;
- no. 3 pistons for front shocks;
- new Team Truck body;
- Teflon-coated internal shock parts.

The *Car Action* staff would like to congratulate Associated Electrics. With all its refinements and wins, we agreed that the RC10T Team Truck should be voted the best of its class this year. Don't you agree?

*Addresses are listed alphabetically in the Index of Manufacturers on page 153.

Solder Capacitors

photos
and story
by JOHN
HUBER



the positive terminal and bend it. Do the same for the other cap, but thread the wire through the negative terminal. With the wires in place, you can start to solder.

Solder two capacitors (caps) to the motor's positive and negative terminals and to the can. These small caps aren't polarized, so you don't have to worry about which wire goes to which terminal. On stock motors, solder the caps directly to the motor can. Thread one wire from each cap through the can eyelet, and bend them so they stay put. Thread one of the other cap wires through

Static stoppers

CAPACITORS ARE those funny-looking things you get with a new motor or a speed controller. They're designed to absorb any electrical "noise" from your motor that interferes with the radio. Have you ever watched TV while someone in your house is using a blow dryer? The static on your set is caused by the dryer's motor, and it's the same type

of "noise" that will cause your electric R/C car to glitch, unless you have capacitors.

Without capacitors, your motor might work well for a while, but as it wears, the need for them will become more apparent. Here's how to install them on your motor so you don't miss out on any fun. All you need is a good soldering iron and a couple of minutes to perform the operation.



Using a hot soldering iron, apply a little solder to the can terminal. The solder should flow freely between the two wires and the terminal. You know it's a good joint if the solder has a shiny finish. Now, to

complete the connection, solder the positive and negative terminals. When the solder is cool, trim any excess wire with wire cutters.

Most new, high-frequency ESCs need a third capacitor between the positive and negative terminals on the motor. It's called a "tantalum capacitor," and it's polarized. Attach the positive lead to the positive terminal, and the negative lead to the negative terminal on the motor. Solder the leads to the motor, and make sure they touch only the positive and negative terminals. Use small pieces of plastic insulation to ensure that nothing touches the leads. You might find it easier to attach the third cap to the opposite side of the motor's endbell, but this is up to you.

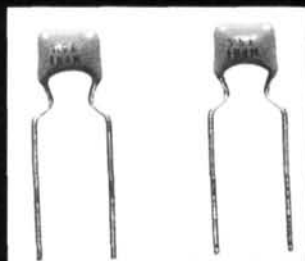


Which Capacitors to Use?

The kind of capacitor(s) you need to keep your

motor "quiet" depends on the type of speed controller you use.

- Mechanical speed controllers don't really require capacitors, but play it safe and attach one 0.1-microfarad 50V ceramic capacitor between the positive and negative motor terminals.
- Frame-rate, or low-frequency, (70Hz)



ESCs require two 0.1-microfarad 50V ceramic capacitors—



one from each motor lug soldered to the can. Also, a 47-microfarad 25V aluminum electrolytic capacitor soldered between the positive and negative motor terminals will help to smooth out the throttle response.

- High-frequency ESCs require three 0.1-microfarad 50V ceramic capacitors: one from each motor terminal attached to the can, and one between the positive and negative motor terminals.



Your motor should look like this when you've finished. Now you won't experience any radio glitches. Make sure you equip all your motors with capacitors so they're ready to use. Good luck and good racing!



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Have you ever been in a ZONE? Nothing can beat you! Everything works perfect! Many of our customers have been experiencing the **POWERZONE**. Here are some of their comments;

"The Purple Haze is so fast I have to gear it like a Modified."

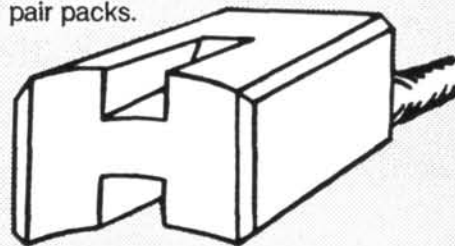
"My buggy has too much power, I can't control it!"

"The Powerzone Comm. Drops are the best. I swear by em."

"I love my Purple Haze Motor. I'm goin' out and gettin' two more right now!!"

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Team Race Prep has tested hundreds of different types of cuts for Lay Down type stock motors and one out performs the rest by a mile. The "H" Cut Lay Down Brush is molded using the famous Silver "R" Compound material. Expect gains of 1000 RPMs and up within the working range of any type of stock motor. Available with or without screw eyelet in 1 or 5 pair packs.



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Race One

by FRANK MASI

Shows us how
It's done



TAMIYA

R/C Championship

C'mon, admit it:

you dream of being a racecar driver.

I hear you making "Vrooom!" sounds behind the wheel of your car! I bet that whenever you make a pass on the highway you shout, "Andretti takes the inside!" Think you'll never get to pilot a real racing car? Well, you're wrong, leadfoot! Radio-control cars let you enjoy the thrill of full-size motorsports without risking life and limb, not to mention a whole heap of money.

Where do you go to start racing R/C cars? Any hobby shop can style you out with a complete setup for about \$200. Want to race your new car? You have a couple of options. You could go to one of the hundreds of permanent R/C car tracks throughout the country. But you really **don't need a track at all!**

We magazine types like to call any type of informal racing "parking lot racing." It can be a race between you and your friends in a vacant lot, on an empty street, or in a hobby-shop parking lot. Wherever it happens, **a parking lot race means fun**, and it can draw many new people into the R/C car hobby.

To show its support of **grassroots racing** and to help promote R/C cars, Tamiya America has launched an ambitious, nationwide race program called the "R/C Championship Series." According to race organizer Eric Sands, the series is designed to provide maximum fun for everyone; the last-place finisher will feel just as important as the winner.

The first race of the Championship Series was held on April 24 at Tamiya's brand-new facility in Aliso Viejo, CA. Of course, Car Action was there in force to check out all the action.



Series



PHOTO BY STEVE KELL

Tamiya's Parking Lot Racers

GTO/GTP

This chassis is similar to Tamiya's F101 and F102 chassis in that it has a floating rear pod that's damped by a single shock and uses identical front suspension. One difference is the use of a plastic tub chassis instead of a fiberglass plate. A brace that's connected to the rear of the front suspension and the front of the plastic tub helps to keep the front end more rigid; this allows the suspension to do its job. The car is equipped with a smooth ball differential. To keep costs down, Tamiya equipped the ball diff with bushings.

AVAILABLE MODELS

Mercedes-Benz C11
Nissan 300ZX IMSA GTO
Jaguar XJR-12
Honda NSX
Ferrari F40
Mazda 787B
Nissan R91CP ('92 Daytona winner)

FWD SEDAN

Tamiya's newest chassis comes with a forward-mounted transmission that drives the front wheels instead of the rears. Race-worthy, 4W independent suspension is mounted on a sturdy, plastic, tub chassis. Other features include an adjustable ball diff and a tough front bumper/motor protector. All the body sets come with super-detailed decals and a full interior with driver figure.

The FWD chassis is surprisingly nimble and surefooted, with just a hint of understeer—just like a full-size FWD!

AVAILABLE MODELS

Idemitsu Motion Mugen Civic
Castrol Honda Civic VTI
Tom's Levin Toyota
Jacc's Honda Civic

WHY CREATE A NEW SERIES?

The goal of Tamiya's Championship Series is to bring R/C racing back into the realm of average hobbyists.

Face it; if you get blown off the track by someone who's a better driver and has a faster car, you're not going to have a good time. To make things fair and equal, in the Tamiya Series, the class you'll race in will reflect the type of car you drive, your age and your skill level.

The cars used in the series (only Tamiya cars are allowed) look incredibly realistic. To watch a full field of Indy and Formula 1 cars finesse their way through a tricky series

of turns is as exciting as watching any real race on TV. And the cars don't just look hot; they perform well enough to challenge even the most experienced driver's skill.

Don't have the time to go racing? Tamiya limits the number of entries for each race of the Championship Series so that you won't have to spend all day at the track; that leaves plenty of time on the weekend for other activities.

RACE ONE GETS UNDER WAY!

Constructed on the grounds of the company's Aliso Viejo, CA, headquarters, Tamiya America's new test track is by far the nicest permanent road-course I've ever seen. Its glass-smooth surface allows cars to run with as little as 1/16 inch of ground clearance, and its barriers feature smooth, sloping edges so your car won't break when you biff.

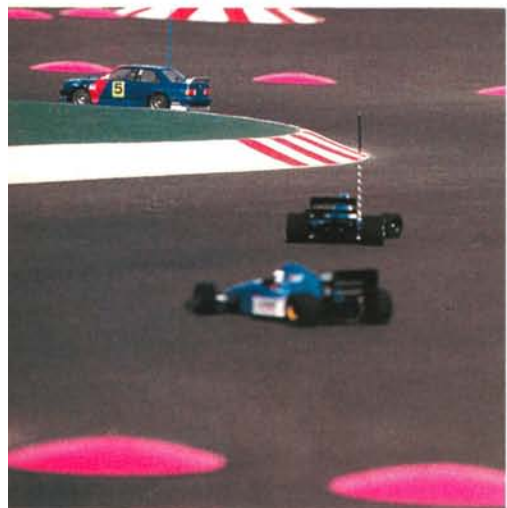
There are classes for three types of Tamiya car:

- Formula 1 (F1) and Indycars;
- four-wheel drive (4WD) and front-wheel-drive (FWD) sedans;
- GTO/sports cars and GTP cars.



For added traction, this racer used electric warmers to pre-heat the tires of his Ferrari F1 car. He won!

Eighty racers came out on Sunday. By far the largest class was F1/Indycar, though there were strong showings in both the 4WD



F1/INDY

Tamiya has three chassis in its F1/Indy lineup. Each offers a variety of body and wheel combinations, so you can choose from your favorite F1 and Indycars.

- **F101**—features Tamiya's FRP (fiber-reinforced plastic) semi-double-deck chassis and a three-point suspension system consisting of two coil springs on kingpins up front and a single, oil-filled damper at the rear. It's equipped with 44mm-diameter front wheels.

- **F102**—similar to the F101, but it's narrower, and its battery is mounted slightly more forward for better weight distribution. The F102 is equipped with smaller, 36mm-diameter wheels.

- **F103**—Tamiya's newest chassis is even narrower than the F102, and it features a more rigid, double-deck chassis design and a rear pod that has an upper, friction-damper plate and a single, oil-filled shock. The F103's battery is mounted even farther forward than that of the F102 chassis. Also equipped with the smaller, 36mm-diameter front wheels.

AVAILABLE MODELS

F101

- Ferrari F189 late version (F1)
- Tyrell 019 Ford (F1)
- Jordan 191 (F1)

F102

- McLaren MP4/6 Honda (F1)
- Williams FW14 Renault (F1)
- Benetton B192 (F1)
- Footwork FA13 Mugen Honda (F1)
- Lotus 102B (F1)

F103

- Lotus 107B Ford (F1)
- Newman-Haas Lola (Indy)
- Sauber Mercedes-Benz C12 (F1)

4WD SEDAN AND RALLY

Tamiya offers two 4WD chassis, both of which are available with either on-road or rally-type body sets and a number of wheel and tire styles.

- **TA01**—features a rigid honeycomb tub chassis; a shaft-driven, full-time 4WD system; 4W independent suspension with oil-filled, coil-over shocks; a front gear differential; and an adjustable rear ball differential. A three-step mechanical speed controller and a Mabuchi 540 motor are also standard.

- **TA02**—shares its plastic chassis with Tamiya's FWD vehicles, but in 4WD configuration. The motor is mounted farther in front of the rear gearbox for better handling. To make the wheelbase the same as the TA01's, the TA02's rear suspension arms have been angled backward slightly.

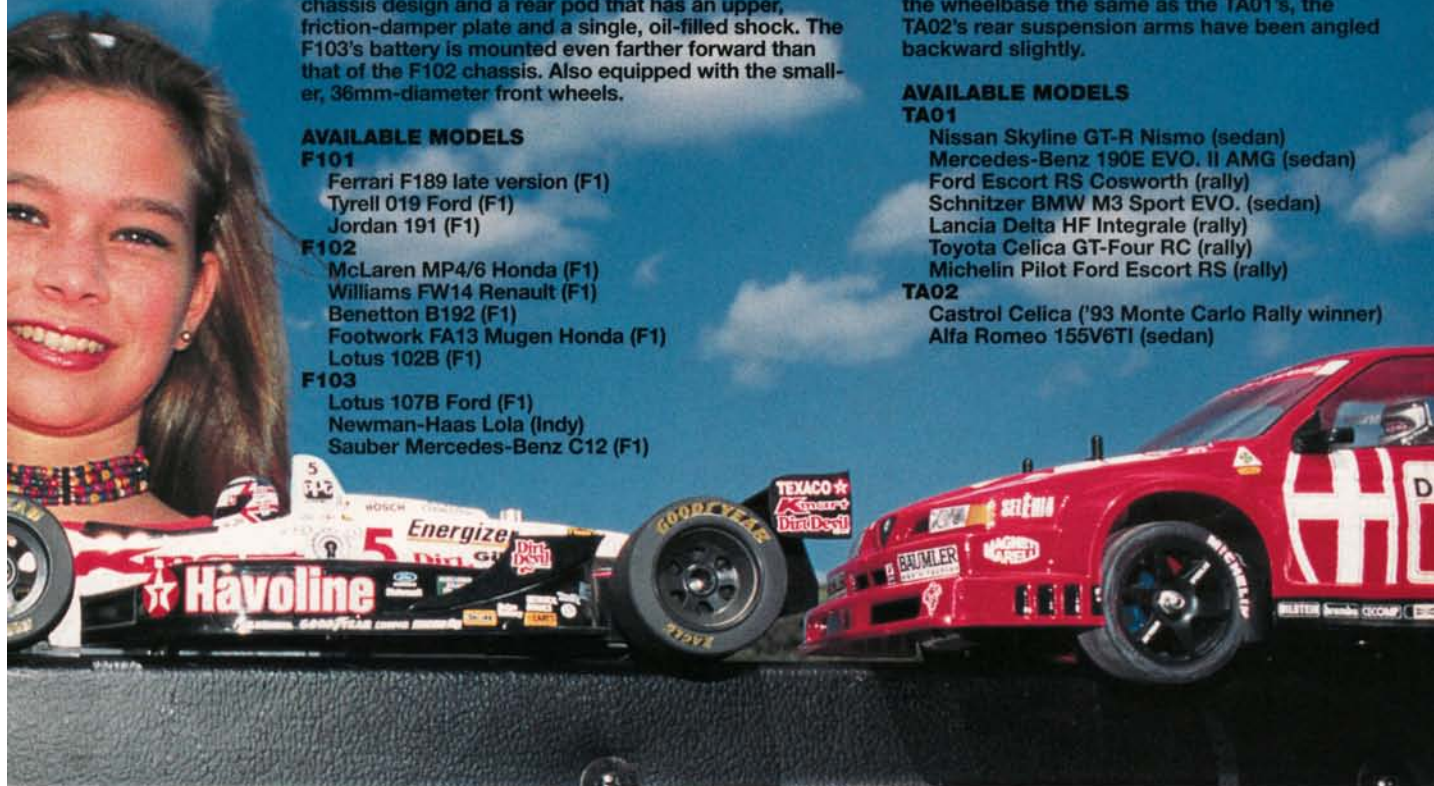
AVAILABLE MODELS

TA01

- Nissan Skyline GT-R Nismo (sedan)
- Mercedes-Benz 190E EVO. II AMG (sedan)
- Ford Escort RS Cosworth (rally)
- Schnitzer BMW M3 Sport EVO. (sedan)
- Lancia Delta HF Integrale (rally)
- Toyota Celica GT-Four RC (rally)
- Michelin Pilot Ford Escort RS (rally)

TA02

- Castrol Celica ('93 Monte Carlo Rally winner)
- Alfa Romeo 155V6TI (sedan)



Tamiya Championship Series Rules

General Rules

STOCK

- All cars must be run as they come out of the box with no modifications.
- Cars must run the stock 540-type motor.
- Cars must use the original bullet-style motor connectors.
- Handout battery pack must be used with original Tamiya connector intact.
- Chassis lightening or stiffening is not allowed.

MODIFIED

- Only Tamiya hop-up options and spare parts allowed.
- Any type of non-adjustable-timing, bushing motor is allowed (by any manufacturer). Motors using ball bearings or

adjustable timing are not allowed.

- Handout battery pack must be used with original Tamiya connector intact.
- Chassis lightening or stiffening is not allowed.
- Modified F1 cars may run American-spec gears of any tooth or pitch.

Technical Rules

F1 AND INDYCAR

- Only Tamiya F1 and Indy-type chassis are allowed.
- Tamiya foam tires only; no after-market tires allowed.
- No traction compound or tire sauce allowed.
- Minimum weight (fully equipped): 36 ounces.

SEDAN

- Only Tamiya front-wheel-drive, TA01 4WD and the new TA02 4WD chassis allowed.
- Tamiya tires and wheels only. No foam tires or traction compound.
- Minimum weight (fully equipped): 50 ounces.

GT

- Only Tamiya GTP or GTO/sports-car chassis allowed.
- Tamiya foam tires only; no after-market tires.
- No traction compound or tire sauce allowed.
- Minimum weight (fully equipped): 45 ounces.

ALL VEHICLES

- Tamiya parts only. No after-market parts. Exceptions: servo-saver, antenna and (in the Modified class only) motors and gears.
- Any 27MHz or 75MHz radio system may be used.
- Pinion-gear size (number of teeth) may be changed.
- All vehicles will be inspected by race officials before each qualifying heat and final.
- Vehicles must be painted in a realistic way to depict actual or fictitious racing teams.
- Driver figures must be used.

Note

- Entries are limited.
- Not all classes will be run at each event.



Part of the Tamiya race's appeal is being able to drive a scaled-down version of your favorite full-size car and driver!

and FWD sedan classes. Browsing through the pits, I noticed that most people spent more time yakking it up with fellow racers than working on their cars. The ones I talked to said that all they do to their cars between runs is remove and recharge the battery, and maybe, if they feel like it, dust off the chassis and give the motor a shot of cleaning spray!

RULES OF THE ROAD!

The Championship Series is an elimination race. You start out by competing in a 4-minute qualifying race; if you're one of the 18 fastest F1/Indycars or one of the 12

fastest sedans, you advance to the semifinal. The semis are 5 minutes long (better make sure that battery's charged!), and if you're quick enough to be among the six fastest in your class, you move on to the 5-minute final.

WHAT DO YOU WIN?

Besides bragging rights, finalists compete for some pretty nifty awards and prizes; in all classes, there are trophies for the first-, second- and third-place finishers and for Top Rookie (rookies are 13 years old or younger), best show of sportsmanship and best-looking car.

The winner in each class also receives a brand-new Tamiya car! To make things even more interesting, the F1 winner receives a sedan car and the sedan winner, an F1 car. Hey! Are magazine editors eligible?

Though sponsored or "factory" drivers are allowed to compete, they aren't allowed to win any awards or prizes. When's the next race?

THE FLAG DROPS

As soon as the racing began, it was obvious that a lot of these guys *really* knew how to tweak the most from their cars. The F1 cars were awesome!—all those little helmets zipping around the track; some cars even had brake lights! Too cool! Though the cars have to resemble full-size racecars, drivers were allowed make up a name for their own fictitious race team and driver and invent a paint scheme. If you follow F1 racing, you know

that many of the '94 cars sport new paint and bodywork. This didn't appear to stop the R/C racers, though; using existing Tamiya bodies and wings and their own painting expertise, some created their own versions of the new F1 cars—detailed right down to the wing and the driver's helmet!

The sedans handle very differently from the F1 cars, but they're just as cool to watch. Sedans must have full interiors, and some racers went all out to make theirs as realistic as possible. The 4WDs and FWDs run together, and I thought that the 4WDs would have a big advantage, but I was way wrong! Tamiya's new FWD chassis proved more than capable of holding its own.

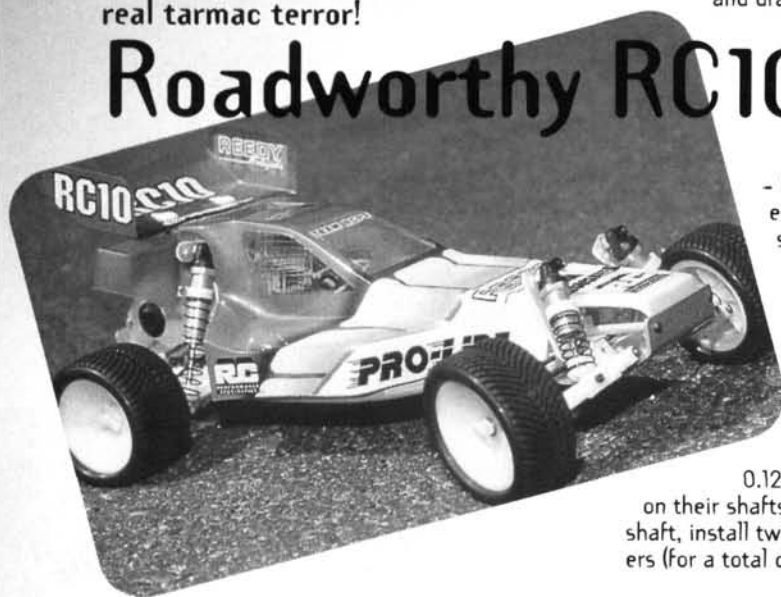
The Tamiya cars handle just like their big counterparts. The F1 cars are flat and stable in the corners, but the sedans pitch and roll. It wasn't unusual to see the sedans traction-roll when their drivers entered a turn a little too enthusiastically! Ouch! Was that a new paint job?

MAKING THE FINALS

Fifty-six F1 drivers vied for the six, coveted, final spots. After making it through the 4-minute qualifying rounds and then the 5-minute semifinals, David "Gerhard" Berger and his F103-chassis Ferrari proved to be a tough-to-beat combination. Berger is an avid parking lot racer and is a member of the local FORCE (Formula One Radio Control Enthusiasts) club. Following hot on Berger's heels was fellow FORCE member "Benetton" Watana with another of

Do you need a certain type of car for parking lot racing? No way! One of the most popular R/C cars is Team Associated's RC10 buggy, and with a little modification, it can be turned into a real tarmac terror!

Roadworthy RC10



KEEP IT LOW!

The first thing you need to do is to limit the travel of the shocks. Here's how:

- Remove the shocks from the car.
- Unscrew the shock-body cap, and drain the oil out of all four shocks.
- Remove the lower spring retainer and the spring from each shock.
- Unscrew the shock end from the shock shaft.
- Remove the shock shaft and piston assembly from the open shock body.
- If built correctly, your RC10's rear shocks will already have two, 0.125-inch-thick spacers on their shafts. On each rear shock shaft, install two more of these spacers (for a total of four). Spacer kits

are available from Associated (part no. 6466).

- Install two 0.125-inch-thick spacers on the front shock shafts as well.

Your RC10 should now be low enough for you to notice a sharp increase in its on-road handling. Feel free to play around with different spacers to further enhance your car's roadworthiness.

BECOME A ROAD HOG!

If you really want your RC10 to shine on pavement, get yourself a set of Pro-Line's Road Hawks or Striker tires. They have a low-profile/wide-stance design and realistic-looking street tread. For the ultimate in traction, the Road Hawks are available in Pro-Line's super-sticky XTR rubber compound with foam inserts to increase stability.

If you've been running your off-road buggy on the street using off-road tires, switch to on-road rubber, and you'll notice a huge improvement.

—by Brian Leslie

Below: Sedan Stock winner Hugh Khim.



Above: Tamiya America Executive Vice President Hirooka hands out the goods to F1/Indy Mod winner Dave Berger.

Below: F1/Indy Stock winner Chin Luc.



President Tamiya talks about the Championship Series



"Tamiya just wants to take the R/C car races back into the hands of the traditional hobbyist."

The Championship Series is an innovative, exciting concept. I had the opportunity to speak with Tamiya America president Masayuki Tamiya about the Series and its origins.

R/C Car Action: Could you please explain the origins of the Tamiya Race Series?

Mr. Tamiya: Tamiya Inc. in Japan—the parent company of Tamiya America—has been organizing this type of racing for off-road and on-road cars for more than 10 years. The Tamiya Grand Prix has become so popular in Japan that the races are televised! In Europe, Tamiya organizes the Eurocup series where racers in each country compete for the chance to race against others representing their territories in a final event. Now that Tamiya is here in the United States, we felt we could offer this kind of unique on-road race series in this country.

RCCA: Can you explain the goal of the Championship Series?

Mr. Tamiya: The Tamiya R/C Championship Series is aimed at the general R/C'er, especially newcomers to the hobby. It was not designed for the sponsored racers or the pro drivers who are too serious about their racing. It's just for fun. As an R/C hobby company, Tamiya thinks it is important to create an environment where people can enjoy their R/C cars without spending lots of money on special batteries, motors, parts, etc.

RCCA: Are you satisfied with the turnout at this first race?

Mr. Tamiya: For the first race of the series, I was very pleased with the response. Many first-time racers came out, which was great to see. Actually, one problem we experienced was finding time to teach drivers about autocount "transponders." We had to explain what they were and how to mount them!

RCCA: Is there anything you'd like to see at future events that you didn't see here today?

Mr. Tamiya: At future events, I hope to see even more newcomers and first-time buyers having fun. I'd also like to add GTP and special on-road truck classes as well.

RCCA: Is R/C car racing in the USA different from that in Japan?

Mr. Tamiya: Racing in Japan is much different, particularly in this type of racing. In Japan, more youngsters participate; in the U.S., most of the participants are adults.

RCCA: Do you think that the needs of the American R/C car buyer are different from those of the Japanese buyer?

Mr. Tamiya: Yes! In Japan, Formula 1 racing is far more popular than Indycar racing—just the opposite in the U.S. Racing in the U.S. has become too serious; the objectives of manufacturers and organizations overshadow those of the R/C car buyers. This can disappoint newcomers. I hope our Tamiya Championship Series will bring a sense of enjoyment to all who come out and race with us and share our objective of having fun.

RCCA: Thanks for your time. We at *Car Action* all hope that the Series will be a huge success.

Formula 1/Indycar Final

Pos.	Laps	Time	Driver	Chassis	Class
1	18	5:03.77	David Berger	F103	Adult Mod.
2	18	5:10.93	Steve Hickman	F103	Spons. Adult Mod.
3	17	5:02.40	Tom Watana	F103	Adult Mod.
4	17	5:02.96	Mark Rebeck	F102	Adult Mod.
5	17	5:07.65	Superat Uahwatanasakul	F103	Adult Mod.
6	17	5:16.39	Tyler Hara	F102	Adult Mod.

4WD and FWD Sedan Final

Pos.	Laps	Time	Driver	Chassis	Class
1	17	5:09.82	Tyree Phillips	TA02	Spons. Adult Mod.
2	16	5:08.28	Andy Jacobson	TA02	Adult Mod.
3	16	5:13.20	Patara Bhenbhargkul	TA02	Adult Mod.
4	16	5:19.94	John Lenhardt	FWD	Adult Mod.
5	15	5:12.22	Donn Rice	TA02	Adult Mod.
6	15	5:16.09	Ron Ponce	TA02	Adult Mod.

Tamiya's hot F103 chassis. The stage was set for some incredible Finals action.

In the sedan class, 24 racers competed with both FWD and 4WD chassis. Tyree Phillips—yup, that guy who works for Novak—proved he can drive as well as fix speed controllers. With his TA02 4WD chassis, he dominated qualifying and the semifinal round, but because he's sponsored, he wasn't eligible to take home any goodies!

Patara Bhenbhargkul (also driving a TA02 chassis) was closest to Phillips, but he could only get within one lap of his time. Posting the third-fastest time during the semifinals, John Lenhardt showed everyone that FWD could be as quick as 4WD, but we'd have to wait till the finals to see whether he or anyone else would be able to touch Phillips.

THE MOMENT OF TRUTH

The F1 final was up first, and when Berger's Ferrari was placed on the grid with electric tire warmers in place, everyone knew what they were in for! It was

Berger's day, because he drove a flawless race. For a little while, Steve Hickman, who was running second with an F102 chassis, kept Berger in his sights. The real battle was between Watana and Mark Rebeck for the third position. Check out the times! These guys were running close!

In F1, Berger had won a pole-to-pole victory, and Phillips would enjoy a similar performance in the sedan final. The surprise challenger of the race was none other than Andy Jacobson of Andy's Bodies. He was strong early on, but as the clocked ticked away, he was no match for Phillips. (I did notice that he and Andy pitted together; I wonder whether Tyree shared all his speed secrets!) In the end, the only driver Phillips *didn't* lap was Jacobson, who took the second-place spot. Third place

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was captured by Patara Bhenbhargkul, who, much to the crowd's pleasure, did his best to prevent Phillips from putting him a lap down!

PARKING LOT RACING— COMING TO YOUR TOWN?

I had a lot of fun at the first Tamiya R/C Championship Series race, and from the looks of things, so did all the racers. It was neat to see all those realistic-looking cars; to see a racer making a last-minute repair to his car's driver figure instead of to its chassis. Racers spent more time socializing

than tweaking their cars, and the pits were filled with the buzz of conversation and laughter. Racing action was intense yet lighthearted. Every driver was trying to win, but no harsh words were exchanged when cars bumped. It was all in good fun!

Many have talked about starting a grass-roots racing series, but as yet, only Tamiya has taken action. After seeing the success of the Championship Series, perhaps others will follow Tamiya's lead, and you'll be able to attend parking lot races in your hometown soon. ■

Tamiya Championship Series Schedule

Race	Date	Location
4	July 24	Miami R/C Speedway , 12546 N. Kendall Dr., Miami, FL 33186; (305) 271-3101.
5	August 21	T&T Eagle , 161 W. Spring Creek Pkwy., Plano, TX 75023; (214) 517-0562.
6	September 25	Larry's Performance R/C , 3430 Highland Rd., Waterford, MI 48328; (313) 683-5529.
7	October 23	Tamiya America , 2 Orion, Aliso Viejo, CA 92656-4200; (714) 362-2240.
8	November 27	Sheldon's Hobbies , 2135 Old Oakland Rd., San Jose, CA 95131; (408) 943-0220.
9	December 11	Miami RC Speedway , Miami, FL.
10	January 29	T&T Eagle , Plano, TX.
11	February 26	Hobby Hangar Speedway , 4433 A Brookfield Corp. Dr., Chantilly, VA 22021; (703) 631-8820.
12	May 21	Larry's Performance R/C , Waterford, MI.

TAMIYA R/C CHAMPIONSHIP SERIES Race Number One Participants

4WD/FWD SEDAN

Name	Chassis	Stock/Mod
Patara Bhenbhargkul	TA02	Mod
Carlos Costa	TA02	Stock
Andy Felix	TA01	Stock
Henry Hancock	TA01	Mod
Andy Hope	TA02	Stock
John Houde	FWD	Stock
Andy Jacobson	TA02	Mod
Lon Johnson	TA01	Mod
Chris Jones	FWD	Stock
Hobie Kaptan	TA02	Mod
Hugh S. Khim	FWD	Stock
Darryl Kinney	TA01	Mod
John Lenhardt	FWD	Mod
Johnny Lum	FWD	Stock
Chuck Mann	TA02	Mod
Tony Martino	TA02	Mod
Bill Moss	TA01	Mod
Mike Paterson	TA01	Stock
Patrick Penn	TA02	Stock
Tyree Phillips	TA02	Mod
Ron Ponce	TA02	Mod
Donn Rice	TA02	Mod
Israel Suarez	FWD	Mod
Joseph Sakatani	FWD	Stock

F1/INDYCAR

Name	Chassis	Stock/Mod
Charles Acevedo	F102	Mod
Doug Adams	F102	Stock
Kevin Asay	F103	Stock
David Berger	F103	Mod
Brent Chan	F101	Stock
Chris Chan	F103	Stock
Riley Chan	F101	Stock
John Christensen	F103	Mod
Cedrick Collins	F102	Stock
Johathan Coltrane	F103	Stock
Duan Dao	F103	Stock
Justin Davenport	F103	Mod
Dave Dawkins	F103	Stock
Jeff Deacon	F103	Mod

Richard Dowdy	F103	Stock
Victor Garcia	F103	Mod
Adam Gelbart	Wizard	Stock
George Gould	F103	Stock
Maddie Gould	F102	Stock
Herb Hanss	F102	Stock
Tyler Hara	F102	Mod
Dante Hernandez	F103	Stock
Steve Hickman	F102	Mod
Craig Hilton	F103	Mod
Joe Houde	F103	Stock
Masayuki Itoh	F102	Stock
Sean Jordan	F102	Stock
Tom Kahl	F102	Stock
Brett King	F103	Stock
Tim Leath	F103	Mod
Chin Luc	F103	Stock
Kevin Martin	F103	Stock
Mark Mabumoto	F102	Stock
Roy Mayes	F102	Stock
Brandon McNally	F103	Stock
Fred Medel	F103	Mod
Doug Mertes	F103	Mod
Scott Meyer	F103	Stock
Richard Monetti	F102	Mod
Valery Monge	F102	Mod
Steve Nguyen	F103	Stock
Brad Palmer	F103	Mod
Mark Rebeck	F102	Mod
Brian Reeter	F102	Mod
Dennis Renwick	F103	Mod
S. Haris Saddul	F103	Stock
Al Trezza	F103	Mod
Superat Uahwatanasakul	F103	Mod
Tom Watana	F103	Mod
Glen Williams	F101	Mod
Ron Williams	F103	Mod
Kevin Wilson	F103	Stock
Kevin Wong	F103	Mod
Robert Wong	F102	Stock
Douglas Woodward	F103	Stock



BMT

by Jeff
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931

B LITZ MODEL Technica* (BMT) is the world leader in on-road gas-racing technology. And when it comes to uncompromising performance, the new 1/10-scale 931 is no exception. It's a scaled-down version of the 1/8-scale chassis that Lamberto Collari used to dominate the last two IFMAR 1/8-scale Worlds. In fact, the 931 has many of the same parts as its bigger brother.

PREPARE FOR THE BLITZ!

The Cippola Difference

The overwhelming popularity of this new class of racing has prompted the creation of several new .15 engines. Strict engine specifications compel manufacturers to produce top-quality products. One of the newest names trying to gain support in .15-engine competition is the Italian manufacturer Cippola. The Cippola .15 is unique because of its large heat-sink

head; it's approximately twice as wide as those on most .15s. In the future, the head will be anodized in a distinctive neon green. Despite its size, the Cippola fits neatly in the BMT 931. A particularly nice 6mm slide-valve carburetor comes with the engine.

On the track, the Cippola performed incredibly. It required very little break-in and only minor fuel adjustments. A four-shoe clutch in the trailing configuration engages slightly later than most clutches and allows the engine to build rpm. As expected, the low-end torque is fairly consistent with that of most .15s, but the

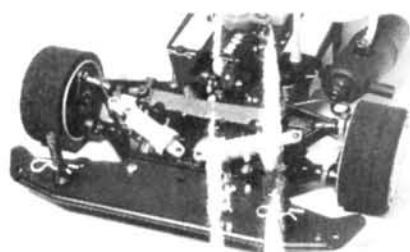


horses really kicked in when the car hit the long straights.

Hats off to Cippola for producing a hot new engine that's sure to heat up the new racing season.

THE ABCs OF BMT

The 931 uses a sturdy aluminum chassis and a resilient, fiber-filled-nylon compound for most of its suspension components. It also features a fully independent suspension, oil-filled shocks, a front stabilizer, a disk brake, a limited slip diff, full ball bearings and an adjustable 2-speed transmission. With all this incredible hardware, you might think that building this car is for experienced gas racers only; but it isn't. Many of the major component groups, such as the differential and the



The 931's front suspension consists of two oil-filled shocks and features Reactive Caster Suspension geometry.

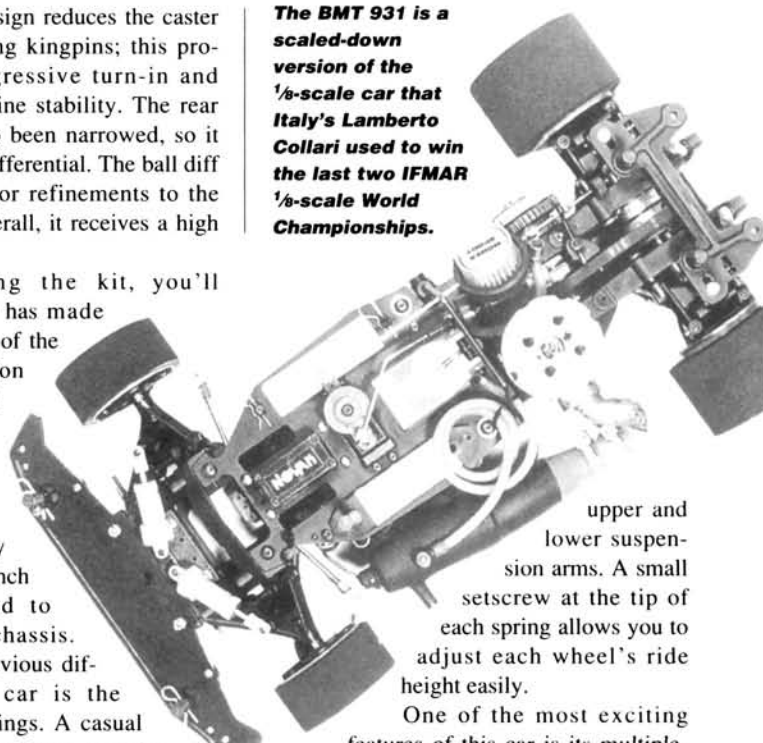
trans, come assembled and ready to be installed. The rest of the parts come in numbered bags. Although the text is a little skimpy, the diagrams in the instructions can easily be followed by experts and novices.

SCALING DOWN AND SHAPING UP

Shrinking the World Champion chassis down to size sounds simple but, in fact, many of the components required major redesigning. The front bulkhead has been cut at the center to narrow the front track by nearly an inch. The car has the unique Reactive Caster Suspension geometry that might have been the inspiration for similar electric-car designs. As the suspension is

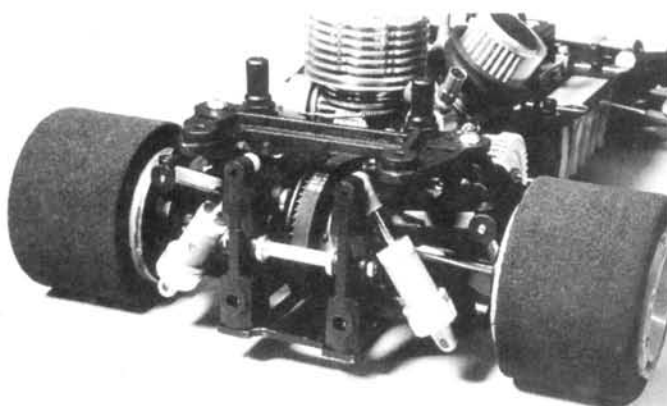
compressed, this design reduces the caster angle of the steering kingpins; this produces a more aggressive turn-in and improved straight-line stability. The rear suspension has also been narrowed, so it requires a smaller differential. The ball diff required some minor refinements to the output cups but, overall, it receives a high mark.

While building the kit, you'll discover how BMT has made nearly every aspect of the advanced suspension adjustable; the secret to this extraordinary design is a series of large ball pivots that can be altered to suit any track. An Allen wrench is all you'll need to tweak the entire chassis. One of the most obvious differences in this car is the absence of coil springs. A casual observer might not even see the small wing-type springs between the



upper and lower suspension arms. A small setscrew at the tip of each spring allows you to adjust each wheel's ride height easily.

One of the most exciting features of this car is its multiple-speed transmission. The 2-speed, auto-shifting tranny delivers hard acceleration in first gear and blistering speed in second. BMT's unique tranny uses a small flyweight pawl that's held in place with an adjustable spring. When the engine's rpm produces enough centrifugal force to overcome the spring tension, the tranny shifts into second gear. Altering the



The 931's rear suspension is similar to that of its 1/8-scale brother, but it has been narrowed and comes with a new ball diff.

The BMT 931 is a scaled-down version of the 1/8-scale car that Italy's Lamberto Collari used to win the last two IFMAR 1/8-scale World Championships.

Dahm Good Body



For the BMT 931, I chose one of Dahm's* new competition Spice bodies, specifically designed to enhance the performance of this car.

Besides its great looks, the Spice is slightly wider to accommodate the new, wider gas cars. Behind the cockpit, it slopes to allow more air to reach the engine's heat sink, and then it rises sharply for excellent downforce. At speeds of nearly 60mph, aerody-

namics become a key factor in performance and handling. Team BMT drivers across the U.S. insist that the Spice is, without a doubt, the most efficient body that they've found. In fact, the Dahm's body is soon to become standard with every 931 distributed in the U.S.

This body's paint job was provided by airbrush master Scot Bich of Bich'n Bodies*.

shift point is as easy as adjusting the spring tension on the counterweight. And seeing a car shift into second gear on the back straight is something that no R/C racer should miss.

To add to this excellent package, a fairly new manufacturer of tire rubber, Ellegi Technics, has been kind enough to include some of its top-of-the-line compound. Ellegi tires are said to be of the

highest quality, and each is carefully measured to ensure consistency. The tires and the neon-green plastic wheels are part of the kit, but the body, the radio, the engine, the manifold and the pipe must be supplied by the racer.

BLITZ BITS

When it was time to install the radio equipment, standard servos fit the bill for the



Top-of-the-line Ellegi Technics foam tires are included in the kit. Each tire has been measured for consistency.

steering and the throttle, and I decided to use Airtronics* 97348S servos for both. I shrink-wrapped the radio receiver and the battery pack onto plastic mounting trays for easy removal and cleaning.

Arranging the carburetor and the throttle linkage proved to be one of the most difficult tasks in building the car. The smaller chassis limits space for the servo, the fuel tank and the engine. To clear the disk

Although the BMT 931 was built to be an awesome roadcourse car, its distributors think that it will be really popular in superspeedway oval racing.

brake, a little material had to be removed from the side of the carburetor. The throttle linkage is bent over and around the fuel tank to reach the slide valve—not so pretty, but still effective.

The BMT 931 does *not* include a pull-starter, an onboard igniter, a fuel-level indicator or, for that matter, training wheels. There's nothing on this car that might detract from its primary purpose: to go very fast. This is a racecar, pure and simple. You'll need a starter box, fuel and a fuel

BMT 931

Scale 1/10
List price \$449.95

DIMENSIONS

Overall length 15.5 in.
Wheelbase 9.5 in.
Front width 9.5 in.
Rear width 9.5 in.

WEIGHT

Gross (ready to run) 4 lb., 6 oz.

CHASSIS

Type Plate
Material Aluminum

DRIVE TRAIN

Primary Pinion/spur/clutch
Transmission Auto 2-speed centrifugal
Differential(s) Ball diff
Slipper clutch No
Bearings/bushings Ball bearings

SUSPENSION

F/R: Type Double A-arm/H-arm
Damping Oil-filled shocks

WHEELS

Front: Type One-piece plastic
Dimensions (DxW) 2x1.5 in.
Rear: Type One-piece plastic
Dimensions (DxW) 2x2 in.

TIRES

Front Ellegi 30
Rear Ellegi 70

POWERPLANT

Engine, pipe, carb Not included

OPTIONS TESTED: Airtronics CS-2P transmitter and receiver; Airtronics 97348 servos; Cippola .15 racing engine; Blue Thunder* 20-percent-nitro fuel; McCoy* racing plugs; Dahm's Spice GTP racing body; Bich'n Bodies painting and detailing; Kehr anodizing (chassis and radio tray).

HITS

• A true racecar • Blistering performance, speed and handling • World-champion quality and durability • Affordable

MISSES

• Some minor assembly modifications needed • Throttle/brake linkage problems • No setup/racing tips • Body posts



One unique feature incorporated in the BMT's design is this 2-speed automatic shifting transmission. Hearing this thing wind out in first gear and then bang into second when it's coming down a straightaway is pretty wild!

bulb, glow plugs, some good tools and a lot of patience to make it all work correctly.

STARTLING SPEED

On the track, the BMT 931 is like no other car I've ever driven. The 931's top speed is easily 60mph or more. The new Ellegi tires gripped the track like glue, allowing the car to corner with only a brief lift of the throttle. This car carries an incredible amount of speed through the corners. Handling was extremely accurate and smooth, even in the tightest corners. This car makes it easy to get into that special groove that serious racers strive to find.



Splash 'n' dash.

Although the BMT 931 was built to be an awesome road-course car, its distributors think that it will be really popular in superspeedway oval racing. Hold on, folks! With a hot NASCAR body and taller gearing, there's no telling how fast this car will go; sustained speeds in excess of 70mph are a real possibility. If you can, imagine a real 500-lap race on a scale oval, with fuel stops and tire changes. Now *that's* racing!

*Addresses are listed alphabetically in the Index of Manufacturers on page 153. ■

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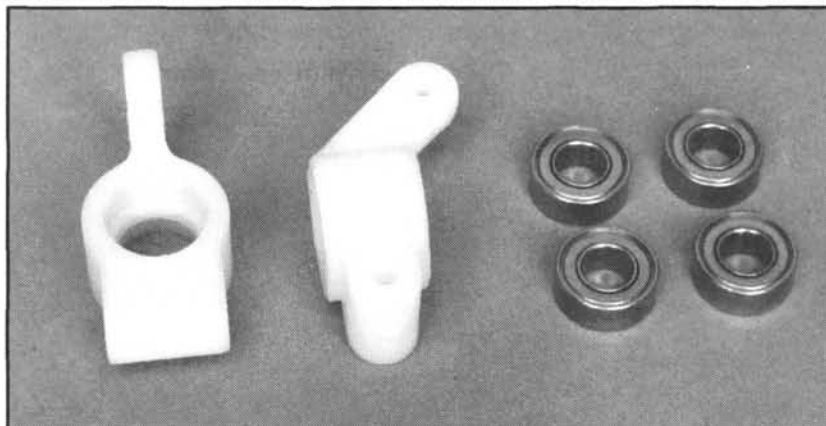
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#80060 Replacement 1.96 Top Shaft — \$9.00

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consists of a new bolt in tranny case and new top shaft. The remainder of the assembly is your stock Associated STEALTH parts!



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Four times the fun!



IT'S A FACT that when 4WD cars hit the track, they bury everything else!

With all four tires clawing the ground, four-wheelers will out-accelerate 2WD trucks and buggies every time. A popular myth surrounding 4WD cars is that, owing to their more complex drive trains, their durability is suspect. This isn't the case with the current generation of buggies. Most modern 4WD cars have

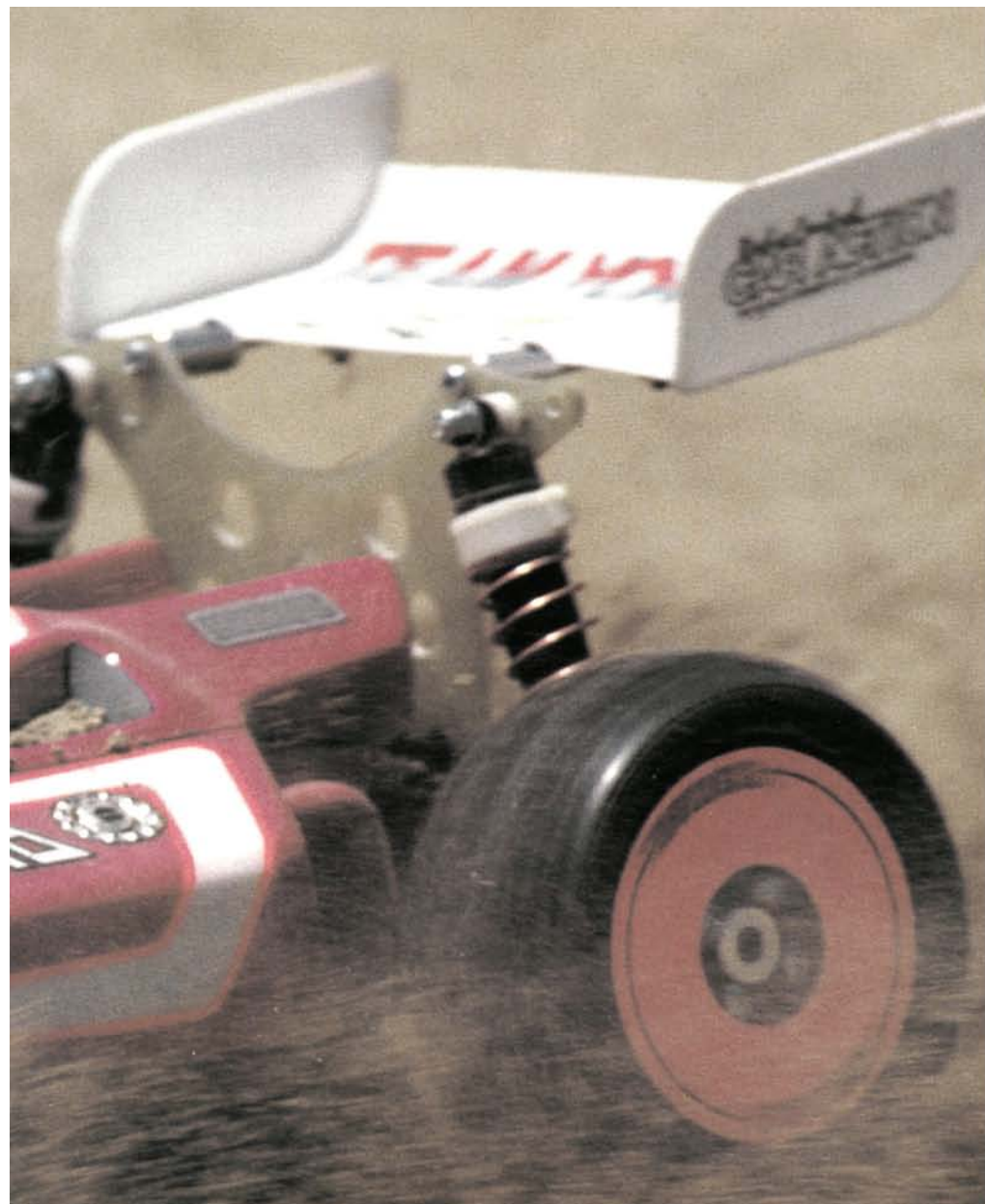
simple, effective drive systems that require little maintenance.

A prime example of current 4WD technology is Yokomo's* new YZ-10 buggy—the same car that Masami Hirose piloted at the '93 IFMAR Worlds to win his third 4WD title. This car is now available worldwide, and as *Car Action's* resident 4WD fanatic, I jumped at the chance to put the YZ-10 through its paces.

WHAT'S THE POINT?

The YZ-10 has an all-new design that's packed with some pretty impressive features, yet it costs





by Frank Masi

less than the car it replaces (Yokomo's Works '93 buggy). How'd they do that, you ask? Well, for starters, Yokomo left out a few items that only serious racers would miss: turnbuckle tie rods and the special center shaft that has a front one-way drive pulley and a friction slipper clutch. Yokomo thinks that this form of the YZ-10 will find its way into many more hands than a more expensive, full-race version. Besides, serious racers can easily upgrade the YZ-10 to their hearts' content. Don't worry, though; even in its stock form, the YZ-10 is no poser!

PHOTOS BY JOHN HOWELL



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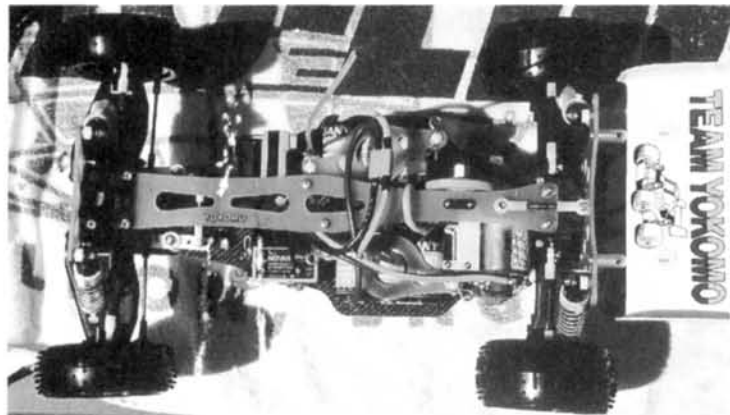
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YOKOMO



MAJOR DESIGN CHANGES

• **Chassis.** The YZ-10's carbon-fiber chassis is the only one I've ever seen (on a 4WD car) that has a kicked-up front end. According to Yokomo, this helps the car handle jumps and rough terrain better. It must work, because YZ-10s swept the 4WD class on the bumpy Basildon, England, Worlds track. The chassis is pretty rigid by itself, but it's made even stronger by a fiberglass upper stiffener plate. The belt that drives the front wheels runs along the entire length of the chassis, so only saddle-pack batteries can be used. To accommodate the cells, the chassis has six slots—three on each side.



The YZ-10's simple, uncluttered design makes it one of the easiest 4WD cars to work on.

• **Suspension.** Four long A-arms, molded of a new, stiffer material, make up the YZ-10's formidable suspension, which allows the car to glide over even the most gnarly bumps. The arms are attached to a set of brand-new, molded, front and rear bulkheads. Previous Yokes had aluminum bulkheads; these were more easily broken and bent—not to mention heavier. The front bulkhead is now narrower than the rear one to accommodate longer front arms; this boosts the car's stability.

Black-anodized, large-volume shocks come standard on the YZ-10. I found that these units, with their Teflon pistons, were

very smooth. The shocks also have neat, molded C-clips with which you can set the desired spring tension. The shocks are attached to a set of fiberglass shock towers. Fiberglass isn't quite as rigid as graphite, so if the car rolls over, the shock towers will flex instead of breaking. Racers will be disappointed to find that the YZ-10 doesn't come with turnbuckle tie rods; it only has lengths of threaded steel rod. Again, Yokomo wanted to keep the cost of the kit as low as possible. If you want turnbuckles, then you'll have to purchase them separately.

• **Drive system.** The Yokomo's belt-drive system is simple, quiet and efficient. A center-mounted shaft drives a pair of belts; the longer of the two belts goes to the front ball diff, the other to the rear. The center shaft is driven directly by the included 15-turn, bushinged motor. The shaft provides full-time 4WD; this makes the car easier for beginners to drive. An optional shaft that features a one-way drive pulley

for the front wheels (to allow the car to turn more tightly) and a friction slipper clutch are available. If you're new to 4WD, stick with the stock setup for a while, then upgrade to the optional center shaft as your driving skills improve.

The YZ-10 uses newly designed ball diffs that have smaller, lighter, hardened-steel diff halves. The lower weight of the



SPECIFICATIONS

Length 16 inches
Width 9.67 inches
Wheelbase 10.5 inches
Weight 3.64 lbs

HITS

- Simple, rugged design
- High-quality parts
- Easy construction
- World Champion performance

MISSES

- Drivetrain susceptible to damage from small pebbles
- One-way front drive must be purchased separately



Will 4WD Make a Comeback?

When I became involved with the R/C car hobby in '85, the fastest-growing division was the so-called "open" class in which the only rule was to go fast. There were one or two RC10s in this class, but most people used 4WD cars; they were easy to drive and could turn fast lap times. When you attended a race, you saw equal numbers of 2WD and 4WD cars. So what has happened to change this? Two things: the popularity of racing trucks and the lack of a U.S.-made 4WD kit.

Have the glory days of 4WD long since passed? I don't believe so. The cars are much better today

than ever before, and companies such as Yokomo are making a big push to get their kits and parts back into the U.S. market at reasonable prices. Also, ROAR has divided its off-road nationals into Stock and Modified divisions, so more racers will be running the 4WD class at both events; this is sure to create more interest. Don't quote me on this, but I've heard rumblings about a certain leading U.S. manufacturer taking a hard look at making a 4WD. The future doesn't look so dim anymore.

Team Losi TECH TALK

NEW BODY FOR THE DOUBLE-X

Jammin' Products now offers a new body designed specifically for the Double-X car. It has lower side pods and a form-fitting shape that hugs the chassis to help keep dirt out. The left side pod has a scoop that's designed to help cool your electronic speed controller. The new Jammin' body is very sleek looking, and it's becoming popular with Double-X drivers everywhere. The part number is J-204.

DOUBLE-X SETUP

Here's the latest setup that most of the team drivers are using on almost all track conditions. Give it a try! In the front, mount the top of the shock in the third hole in the tower. Mount the bottom of the shock in the middle hole in the arm. Mount the camber link in either the outside hole, or one hole in. (Try them both to see which one you like best; different drivers use different holes.) For the front shocks, use silver springs and no. 56 pistons with 30WT oil. The front ride height should be set to arms level. The front camber should be set to about 1 degree to 2 degrees of negative camber. The toe-in should be set as straight as possible (no toe-in or toe-out).

For the rear end, mount the bottom of the shock in the outside hole in the arm and the top of the shock in the third hole in the tower. Mount the camber link to the no. 7 hole in the rear bulkhead and the no. 4 hole in the rear hub. For the shocks, use pink springs and no. 55 pistons with 35WT to 40WT oil (depending on the temperature and the track's roughness). The rear ride height should be set to dogbones' level. Use a no. 2 rear pivot support and an 88-tooth spur gear. The rear camber should be set to about 2 degrees of negative camber.

Give this setup a try and see how it works for you! Keep in mind that all tracks and conditions are different, so you might need to adjust a few settings to suit your conditions. For the most part, this setup should be fairly close.

OK, IT'S COMING SOON!

That's right! The thing that you've all been asking for is on its way to the shelves of a hobby shop in your area! What is it, you ask? Well, the Double-XT, of course! This awesome new truck should be available sometime in August. Watch for it!

* * *

Let us know what's going on! Address your questions and problems to Team Losi, "Tech Talk," 13848 Magnolia Ave., Dept. J, Chino, CA 91710.

diffs allows quicker acceleration—most noticeable when the car exits tight turns. To allow the use of the longer front suspension arms, the front diff is narrow. The drive train's efficiency is carried to the wheels through a full set of hardened-steel, universal-joint drive shafts and, of course, sealed ball bearings are used throughout the car.

Looking at the photos, you'll notice a small tie rod on top of the rear bulkhead. This rod allows fine adjustment of the front drive belt's tension—a feature not found on previous Yokomos.

• **Other notable bits.** The YZ-10 also features an excellent, twin-bellcrank steering system with a built-in, adjustable servo-saver. The Yoke's body looks like something out of "Robotech" with its large, twin cooling ducts and swoopy side pods. A Lexan undertray is included and should keep most of the gook from entering the car's drive train and fouling it up. When you run the YZ-10 in dirt, use the undertray or suffer the consequences! My YZ-10's body was done up by the infamous Scot Bich of Bich'n Bodies*. If you're interested in that custom look, give Scot a call.

A cool, molded-nylon rear wing is mounted on the rear shock tower. This super-durable wing should handle anything that's dished out. I made my wing just like the one on Masami's Worlds-winning car by carefully cutting the side dams with body-trimming scissors, then sanding the edges smooth.

YOKO-MOTION!

With two charged packs and good weather (and photo-geek Doogie), I headed to a nearby R/C/BMX track for some serious thrashing. I always feel obligated to test cars on an actual R/C track first, and I can say that the YZ-10 is awesome in the dirt! Acceleration is so quick that you need to plan well in advance for each corner or risk overshooting it. Despite its low ground clearance, the car didn't feel as if it were dragging on the bumps (although I'm sure it did). The Yokomo jumps really well for a 4WD car. It has more weight up front than a 2WD, but this didn't affect mid-flight performance. I surmise that the chassis kick-up has something to do with this. Also, the 4WD system, with its "outtasight" acceleration, allows the car to get more air time with less approach; "unclearable" double and triple jumps can be done. Cornering on the tight, twisty track was good, but I personally would prefer the tighter handling afforded by the optional center shaft over the full-time front drive of the stock setup.

TEST-SESSION SETUP

Here's how I set up my YZ-10 for the test session:

RUNNING GEAR

TransmitterJR Remote Control* X-756
ReceiverNovak* NER-3FM 75mHz
ServoKO Propo* PS1003 FET
Speed controller ..Novak 410-HPc
BatteryTrinity* EX-Sport Sanyo 1700 SCR
MotorYokomo Pro Stock 15 turn
ConnectorsDeans* Ultra Plugs
Pinion-gear size ..17T, 48 pitch
Spur-gear size81T (stock)

FRONT SUSPENSION

Shock oilAssociated* 40WT
SpringsYokomo Copper
Top mountOutside hole
Bottom mountOutside hole
Ride heightDriveshafts just below
Camber-2 degrees
Toe-inNone

REAR SUSPENSION

Shock oilAssociated 30WT
SpringsYokomo Copper
Top mountMiddle hole
Bottom mountOutside hole
Ride heightDriveshafts level
Camber-2 degrees

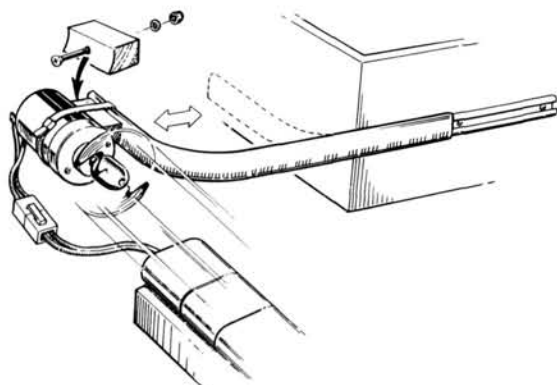
With my track-testing commitment over, I grabbed the YZ-10 and hopped over to the adjoining BMX track for some "Howdy" testing. You haven't lived until you've jumped a set of 14-foot-high doubles with an R/C car! I'm pleased to report that the Yoke suffered no harm during the entire test—so much for being "easily broken." Hah!

Immediately following the '93 IFMAR Worlds, I had the opportunity to possess Masami's winning YZ-10 for a week. Aside from a couple of changes (Masami used Associated shocks) and upgrades, this is the same car. Yokomo is really serious about the U.S. market, and the new YZ-10 may be just the spark to light the 4WD flame once again. Check one out, and look for an upcoming feature in which I'll upgrade my car to full-race specs.

*Addresses are listed alphabetically in the Index of Manufacturers on page 153. ■

PIT TIPS

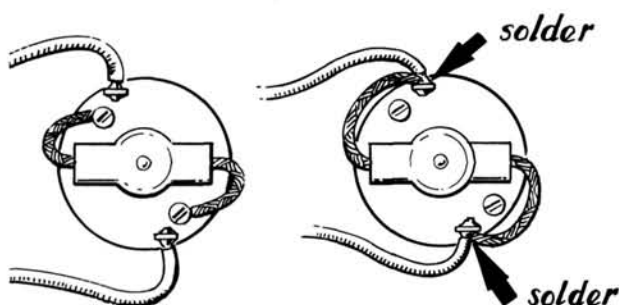
by JIM NEWMAN



RETRACTABLE FAN

You can use an old motor and fan to discharge your battery pack and cool it at the same time. Use a wooden block, a long screw and a nylon tie to mount the motor and fan on a short piece of sliding curtain track. Then screw the track onto the side of your toolbox.

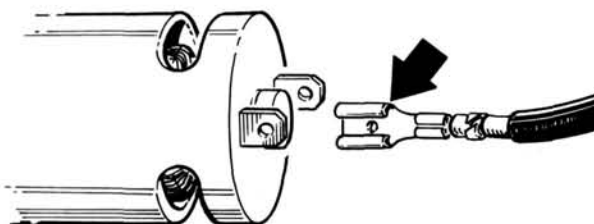
Brien Hornor, Bridgeport, WV



SIMPLE PERFORMANCE BOOST

To lower the resistance of the screwed-on brush terminals and gain a few rpm, simply solder your brush leads directly onto the supply-lead terminals. This makes changing brushes a little harder, but the increased efficiency will be worth the effort.

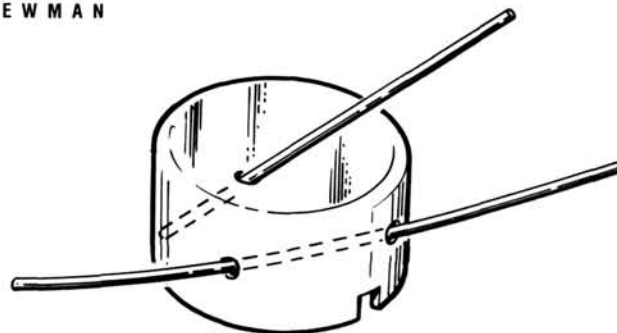
Matt Karau, Grand Blanc, MI



QUICK MOTOR DISCONNECT

For quick changes in the pits, solder spade lugs onto your power leads so you can easily slide them off your motor.

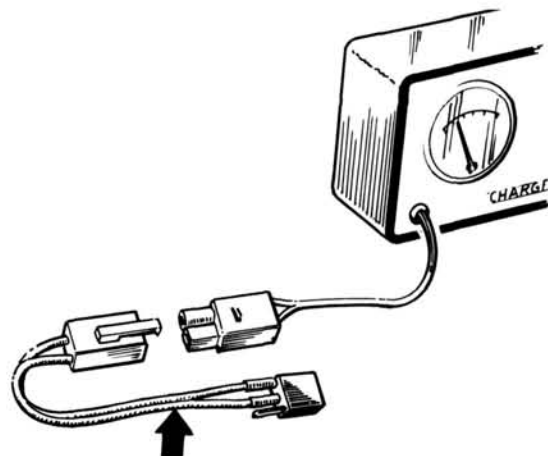
Isaac Trowbridge, Grand Rapids, MI



APPLICATOR STORAGE

To avoid losing the long applicator tube that comes with some aerosol cans, drill a hole in the top of the lid, and force the tube into it; or drill a pair of holes in the side of the lid, and pass the tube in one hole and out the other.

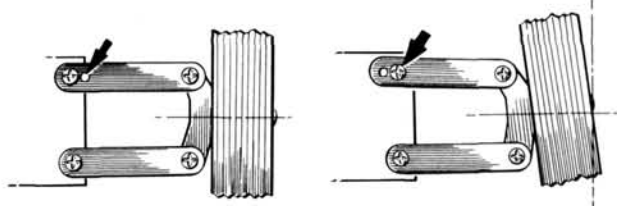
Alex Stoermer, Cincinnati, OH



CHARGER ADAPTER LEADS

If you share a charger with someone who has a different kind of battery plug, make this simple adapter. The plug on the charger will fit one type of battery, and the plug on the adapter will fit another.

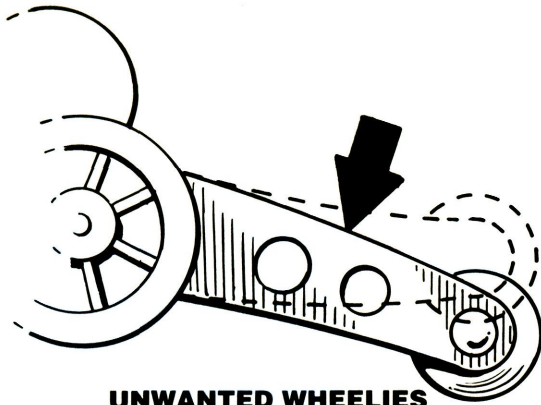
Gerardo Rubalcaba, Los Angeles, CA



CAMBER CHANGE MOD

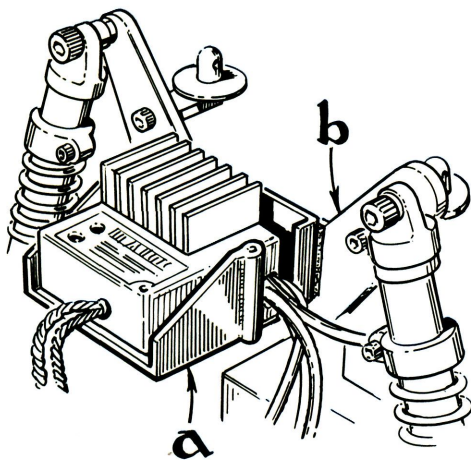
If your car's suspension doesn't have adjustable camber, drill an extra set of holes in the suspension linkage, or wishbones. Now you can reposition the pivot to tilt the top of the wheel inward. Keep the holes closely spaced so that you can make small adjustments.

John McEachern, Toronto, Ontario, Canada



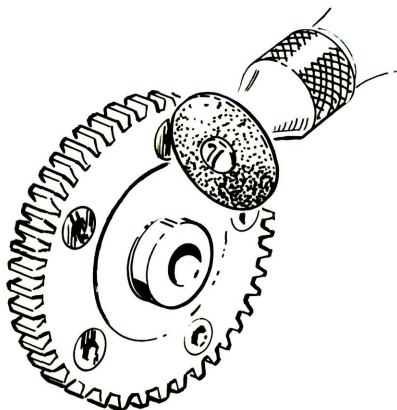
UNWANTED WHEELIES

To prevent your Lunch Box or Midnite Pumpkin from doing wheelies, simply flip the wheelie bar over to bring the wheel closer to the road. *David Irwin, Schomberg, Ontario, Canada*



RC10 SPEED-CONTROLLER MOUNT

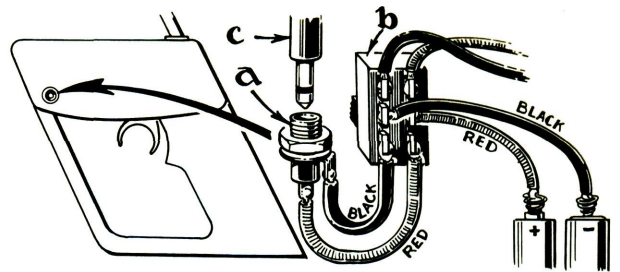
Obtain a spare battery cup (a), and mount it on your shock tower (b) with servo tape. Cut a notch in the side of the cup to clear the wires, and install your controller in the cup with servo tape. *Matt Judd, Encinitas, CA*



STRIPPED-SCREW REMOVAL

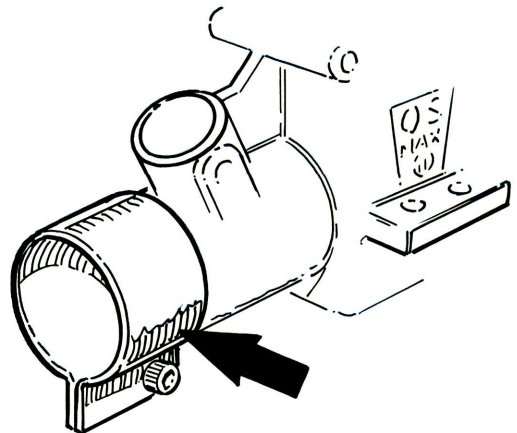
If you strip out the hexagonal hole in a spur-gear screw, use a very small Dremel grinder disk to cut a screwdriver slot in the head. Wear safety glasses when you do this.

Chris Pomara, Brooklyn, NY



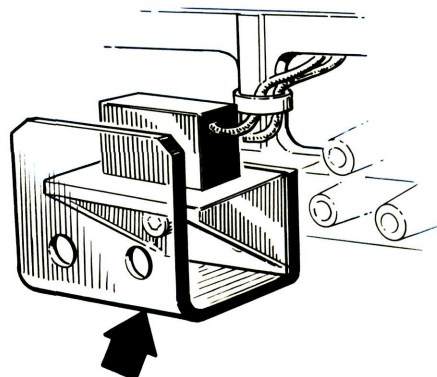
MAGNUM SPORT CHARGING JACK

Pop off the jack cover on the back of your transmitter; then glue in a Radio Shack jack—no. 274-1565 (a). Using wire of the same size, connect the jack to the empty terminals of the on/off switch (b). Discard the alkaline batteries, install Ni-Cds, and charge them with an appropriate wall charger on which you've installed a Radio Shack plug—no. 274-1567 (c). The transmitter switch should be off when you charge the Ni-Cds. *Brett Van Liew, Hoffman Estates, IL*



FLYWHEEL OIL CATCHER

The flywheel on the O.S. CZ-R .12 engine can spatter oil inside your car. To catch the oil drops, curl and clamp a 5/8x3-inch strip of aluminum around the front of the engine, as shown. *Tom McCausland Jr., Fort Bragg, NC*



IMPACT GUARDS

To protect the heat sink and the switch on the sides of your chassis, bend and drill these guards out of 1/32-inch-thick (or thicker) aluminum, and use the existing mounting screws to attach them. The holes are for the Allen key or screwdriver access. *Bill Richardson, APO, AE*

Radio Control Car Action will give a one-year subscription (or one-year renewal if you already subscribe) for each idea used in "Pit Tips." Send a rough sketch to Jim Newman, c/o Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. Because of the number of ideas we receive, we cannot acknowledge each one, nor can we return unused material.



EXPLOSIVE

Kyosho

Turbo Inferno

Head-to-Head Comparison

Two of the **HOTTEST** names in gas off-road racing are **Mugen*** and **Kyosho***. Cars from both companies have **WON** IFMAR world championships and countless others, including many **Kyosho/Car Action World Challenge** races. There's an **INTENSE**

ENCOUNTER!



PHOTOS BY JOHN HOWELL

no Mugen Athlete

by FRANK MASI

rivalry here, and to *add fuel* to the *fire*, we're showing the **LATEST** machines from *both* companies—Mugen's **Athlete** and Kyosho's Turbo **Inferno**—here in the *same issue*, so you can *decide* which is the **BEST**.

*Addresses are listed alphabetically in the Index of Manufacturers on page 153.

Perhaps a better name for Kyosho's new Turbo Inferno would be "World Champ Special," because it's essentially a standard Inferno that has been hopped up with the same modifications as those made by Kyosho team drivers—mods that brought Kyosho the '92 world championship title.

There aren't any major changes to our '93 Car of the Year, so Inferno owners can rest assured that their beloved nitro burner will be competitive for years to come. The differences between the Inferno and the new Turbo version are subtle, and they can be made to any Inferno or Inferno DX.

DRIVE SYSTEM

The first thing you'll notice about the Turbo Inferno is its eye-catching, blue-anodized, 2.5mm-thick aluminum chassis. Though the Turbo's drive system looks identical to that of the Inferno, there

Performance

Having owned and driven a Kyosho Inferno, I was very interested to see whether the Turbo's improvements would make a difference on the track.

After photographer John Howell had finished snapping, he gave me the OK to cut loose, and I naturally obliged! The Turbo Inferno screamed to life, and when I gunned it, the car spit chunks of dirt and pebbles as it clawed its way to the first turn. To avoid overshooting the corner, I stood on the brakes and was rewarded with a controlled slide. When I buried the throttle again, the car shot out of the corner like a rocket. By adding silicone-filled diffs, Kyosho has made the Turbo Inferno more stable and easier to drive. Acceleration is fast but controlled, and the diffs don't "unload" when the car bounces.

The new shocks also work well. On the rutty stuff, the Inferno's increased front travel helps to keep the car on its wheels, and the rubber dust boots really work! (No dirt entered the shock seals.) Cornering is smooth, but when I disconnected the front sway bar, the Turbo's turning became much tighter.

Kyosho has made a great car even better. Differences between the Inferno and the Turbo go beyond cosmetics. For a modest price increase, you can own the car that won the '92 Worlds.

In the Turbo, the bevel gear that contacts the slipper pad is locked onto the diff-joint shaft with a setscrew, so it won't move around, and I'm told that this will lengthen the life of the diff parts. Though the drive system isn't

truly "in line," it's very close, so power transfer is smooth and efficient.

Working on the drive train is a snap. The gear cases are segmented so that the front and rear diffs can be taken out without disturbing the car's suspension or doing any unnecessary disassembly. The center diff can be removed by undoing six screws.

Bringing the Turbo to a halt is the responsibility of a dual disk-brake system. The brake disks are at either end of the center diff, and they're clamped by metal pads. I used Kyosho's optional,

fiber brake disks (part no. BSW-52) because they seem to last longer than the stock ones.

SUSPENSION

The Turbo Inferno's 4W independent suspension is one of the strongest, most versatile available. Molded lower H-arms with adjustable-length, upper A-arms are used at all four corners. New, blue-anodized, pressurized shocks come with the Turbo kit; they feature rubber dust boots that should prevent dirt from penetrating and damaging the shock seals and scratching the shock shafts. Also, for increased suspension travel, the front shocks are slightly longer than those of the regular Inferno. The lower, front-suspension arms have an additional, outer shock-mounting hole to ensure proper geometry. Instead of clamping shock collars, the Turbo has molded C-clips that are installed between the shock cap and the spring to adjust pre-load.

Front and rear adjustable stabilizer bars come with the Turbo and improve cornering on fast tracks. Most racers use the rear bar, but the front bar tends to take away some steering, so it's used less often.

OTHER IMPORTANT BITS

The Turbo Inferno comes with all the linkages and miscellaneous hardware that are needed to get it running. An aluminum radio tray holds the steering and throttle servos, the receiver and the receiver's battery pack. By taking out five screws, you can easily remove the entire tray for maintenance and for cleaning. The provided, flip-top fuel tank is mounted on the chassis' left side, just in front of the engine. This position minimizes the risk of spilled fuel damaging the receiver.

A dual-bellcrank steering system with a built-in servo-saver is included, as are a neat, lime-green, molded-nylon wing and one-piece wheels of the same color.



are several subtle, but important, differences. The Turbo uses three bevel-gear differentials—one up front, one in the rear and one in the car's center—just like the Inferno, but the new car comes with Kyosho's O-ring-sealed diff cases. Using these cases allows you to fill the diffs with thick, silicone fluid that stiffens their action and prevents them from "unloading" (a condition that causes power loss).

The Inferno's center diff has a unique, "limited-slip" feature that allows its action to be set tight or loose, depending on the tension of an internal slipper pad.

Turbo Inferno

Athlete

Forget about updates and subtle reworks. The Mugen Athlete is a brand-new car—period! The old Super Sport handled excellently (I've built and raced two), but it suffered from several flaws. First, its drive system wasn't in line; the shaft that connected the center/rear diffs to the front diff ran at an angle. Second, you had to disassemble half the car just to get to the diffs. Third, the fuel tank was precariously close to the radio gear. The Athlete has none of these shortcomings and offers much, much more.

DRIVE SYSTEM

A totally trick, purple-anodized, aluminum chassis serves as the Athlete's foundation. The drive system comprises three planetary-type gear diffs that have aluminum housings and machined-steel gears. The diffs are much smaller and lighter than those of the old Super Sport, but they're just as strong. The center diff is mounted midway between the front and

steel bevel gears, and the center diff by a thin-profile, steel spur gear. I also found it interesting that all three diffs use the same cases, so their parts are interchangeable. For four-wheel stopping power, the Athlete uses two fiberglass disks, one mounted on either side of the center diff. All said, the Athlete's drive train looks beefier than that of my coworker's Ford Festiva.

SUSPENSION

The Athlete's completely independent suspension is also an improvement on that of the Super Sport. The car's most important feature is probably its weight distribution; its weight is more centered, and the fuel tank's position makes its distribution less likely to be affected by fuel level. Molded, lower A-arms and adjustable upper camber links are damped by cool-looking, purple-

make new suspension arms. Shock angle has also been improved: as the suspension is compressed, the shocks stay perpendicular to the arms for consistent action.

A front caster angle of 20 degrees and a newly designed bellcrank system that gives more Ackerman (the difference between the angles of the front tires as the car turns) allow smoother and more responsive steering.

OTHER IMPROVEMENTS

In my opinion, the thought that goes into a car's overall design is at least as important as how well it performs on the track. In this area, the Athlete is head and shoulders above the Super Sport. A purple-anodized radio tray holds the steering and throttle servos and is attached to the chassis with molded posts. Because the tray sits well forward of the fuel tank, there's very little chance that your expensive radio gear will be damaged by a fuel spill. A neat, molded receiver box is bolted to the tray and to the chassis. The box is large enough to accommodate most full-size receivers, and in the lid, there's

Athlete Performance

Probably the best thing about the Athlete's performance is its responsiveness to driver input. When you drive the Mugen, the car feels like an extension of you. The new suspension makes the Athlete one of best-cornering buggies I've ever tested. The car steers very hard when entering a turn, but it doesn't push when exiting (a common trait of many other buggies).

The Athlete proved very stable over some serious bumps (we did our testing at a nearby BMX track). It flew straight over the jumps, and when airborne, its attitude was easy to control with the throttle and brakes. Overall, the Athlete's new design is impressive for two reasons: it's easy to work on; and it handles well on the track.

rear gearboxes, and it's positioned so that the drive shafts that connect it to the front and rear diffs are perfectly in line, making for smoother, more efficient power transfer.

To me, the best feature of the new driveline is how easy it is to work on. The front and rear gear cases are segmented, so you can remove the diffs simply by taking out a few screws and pulling off a gear-case half. Also, by popping off the top brace and removing one side mount, you can take out the center diff. Why all this talk about removing diffs? In an 1/8-scale 4WD car, packing the diffs with grease or filling them with thick, silicone fluid (only done with O-ring-sealed cases; optional on the Athlete) is a major tuning aid.

The front and rear diffs are driven by

anodized, large-volume shocks. Both front and rear upper camber-rod inner mounting positions can be changed to alter the car's roll center.

Small aluminum plates are inserted into slots in the lower arms. The shocks are attached to these for a much stronger mount. In the future, Mugen will be able to alter the shock geometry by making a different plate but without having to

a small channel that allows the wires to exit without allowing dirt and moisture in. When the car gets gunky—and all gas buggies do—the tray and the receiver box can easily be removed as a unit. A "stand alone" receiver battery mount is also a nice touch. Almost any 5-cell pack will fit (I used Dynamite's* in-line, 5-cell pack).



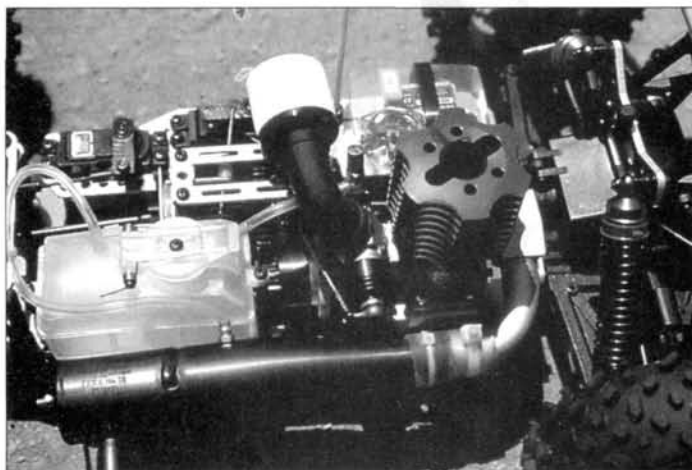
Turbo Inferno



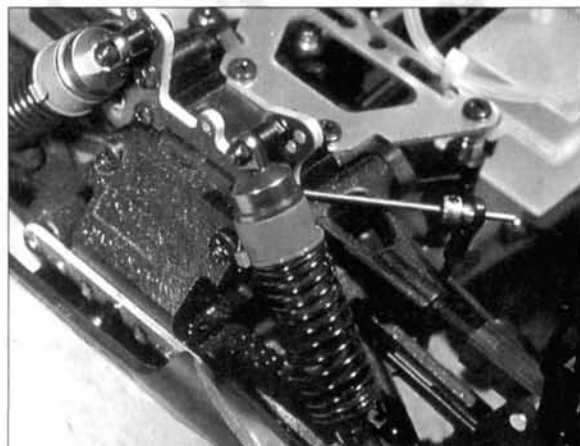
Check out these features: tough, molded-nylon suspension arms; long, oil-filled shocks with aluminum bodies; adjustable upper camber link with multiple mounting holes in the shock tower and in the hub carrier. Rear sway bar keeps the Turbo Inferno under control and adds to steering response.

SPECIFICATIONS KYOSHO TURBO INFERNO

Length	17.8 in.
Wheelbase	12.9 in.
Front width	11.75 in.
Rear width	11.9 in.
Weight	7 lb., 6.4 oz.
List price	\$679.95



Clean, simple, and easy to work on. The Turbo Inferno's layout is logical and straightforward. Placement of fuel tank minimizes damage from fuel spills, and the one-piece radio tray allows quick removal of all electronics.



New, blue-anodized shocks feature molded spring adjusters and trick, rubber dirt seals to prevent shock-seal damage. The Turbo Inferno comes standard with Kyosho's O-ring-sealed diff cases. Performance is enhanced by filling the diffs with thick, silicone fluid. Front sway bar tended to take away steering, so I detached one end to disable its effect.

Test equipment

Engine	O.S.* RX-B
Pipe	O.S. T-2010
Header	O.S.
Glow Plug	McCoy MC9
Fuel	Byron* Race Fuel 30%
Transmitter	Airtronics* Caliber 3P
Receiver	Novak NER-3FM 27MHz
Steering servo	Airtronics 94151
Throttle servo	KO Propo PS1001
Tires	Kyosho W-5646-H w/foam inserts

Test setup

Front Suspension

Shock pistons	Small, half-moon cutout
Shock oil	35
Spring	Kit black
Shock mount	Outer hole
Toe-in	1 degree
Camber	2° negative
Camber-link (inner)	Top hole
Camber-link (outer)	Stock

Rear suspension

Shock pistons	Single hole
Shock oil	25
Spring	Kit black
Shock mount	Outer hole
Rear arm mount	No. 2
Camber	2° or 3° negative
Camber link (inner)	Top, inner hole
Camber link (outer)	Bottom, outside hole

Differentials

Front	Half-filled w/Kyosho 50,000 silicone fluid
Center	Three-quarters filled w/Kyosho 50,000 silicone fluid
Rear	Half-filled w/Kyosho 50,000 silicone fluid

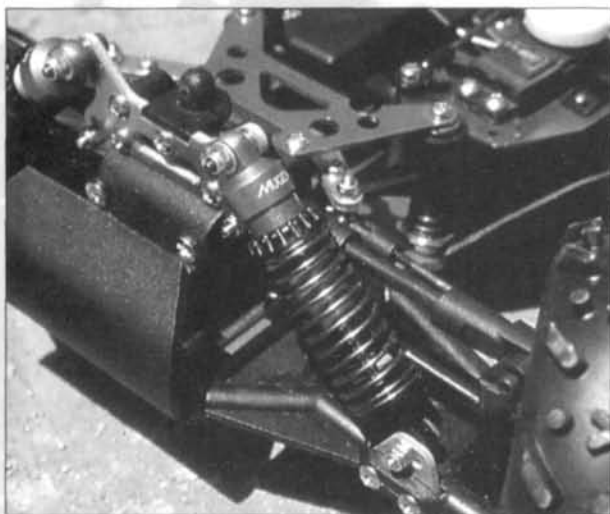
Stabilizer Bars

Front	Kit bar used*
Rear	Kit bar used

Ride height

Front	.24mm (0.945 in.)
Rear	.27mm (1.06 in.)

* Detached during tests for added steering



The Athlete sports an all-new front suspension. Hot-looking, purple-anodized shocks feature threaded bodies that use screw-on spring adjusters. New front and rear gearboxes allow super-fast access to the car's planetary-gear diffs.

Test equipment

Engine	Rex* three-port buggy
Pipe	Rex 750
Header	Mugen CO902
Glow plug	McCoy* MC9
Fuel	Mu-Juice* 30 percent
Transmitter	KO Propo* EX-1
Receiver	KO Propo KR-291F
Steering servo	KO Propo PS1003
Throttle servo	KO Propo PS1003
Tires	Athlete kit tires

Test setup*

Front Suspension

Shock pistons	One-hole, 1.4mm
Shock oil	15WT
Spring	Kit
Shock mount	Inner hole
Toe-in	0 degrees
Camber	1 to 2 degrees negative
Camber link (inner)	Lower hole
Camber link (outer)	Stock hole

Rear suspension

Shock pistons	One-hole, 1.5mm
Shock oil	20WT
Spring	Kit
Shock mount	Inner hole
Rear arm mount	0 degrees
Camber	2 to 3 degrees negative
Camber link (inner)	Lowest hole
Camber link (outer)	Inner hole

Differentials

Front	Half-filled w/Mugen 50,000 silicone fluid
Center	Three-quarters-filled w/Mugen 50,000 silicone fluid
Rear	Half-filled w/Mugen 50,000 silicone fluid

Stabilizer Bars

Front	None used
Rear	2.5mm thick

Ride height

Front	20 to 25mm
Rear	23 to 28mm

*Mark Pavidis's winning '94 Hemet Gas Challenge race setup

SPECIFICATIONS MUGEN ATHLETE

Length	19.4 in.
Wheelbase	12.7 in.
Front width	11.75 in.
Rear width	12 in.
Weight	7 lb., 6 oz.
List price	\$649.99



Beefy rear suspension arms with adjustable upper camber links proved strong enough to survive some serious pounding. The Athlete uses sealed, large-diameter ball bearings everywhere!



The Athlete's layout is vastly superior to Mugen's Super Sport buggy. A molded box protects the receiver from being damaged by fuel spills or moisture. The center diff unit is easily accessible, and front/rear brake bias is a snap to adjust. Rex engine provides mondo horsepower!

Get 'em Running

Very few gas cars come ready to run, but both the Mugen Athlete and Kyosho Turbo Inferno come well-equipped with flywheel, clutch, engine mounts and an air cleaner. To get each car running you'll need to buy:

- .21-size buggy engine
- Fuel
- Manifold
- Glow-plug igniter
- Pipe
- Hand-held starter or starter box
- 2-channel radio system

Athlete

Radio Control **CAR ACTION**

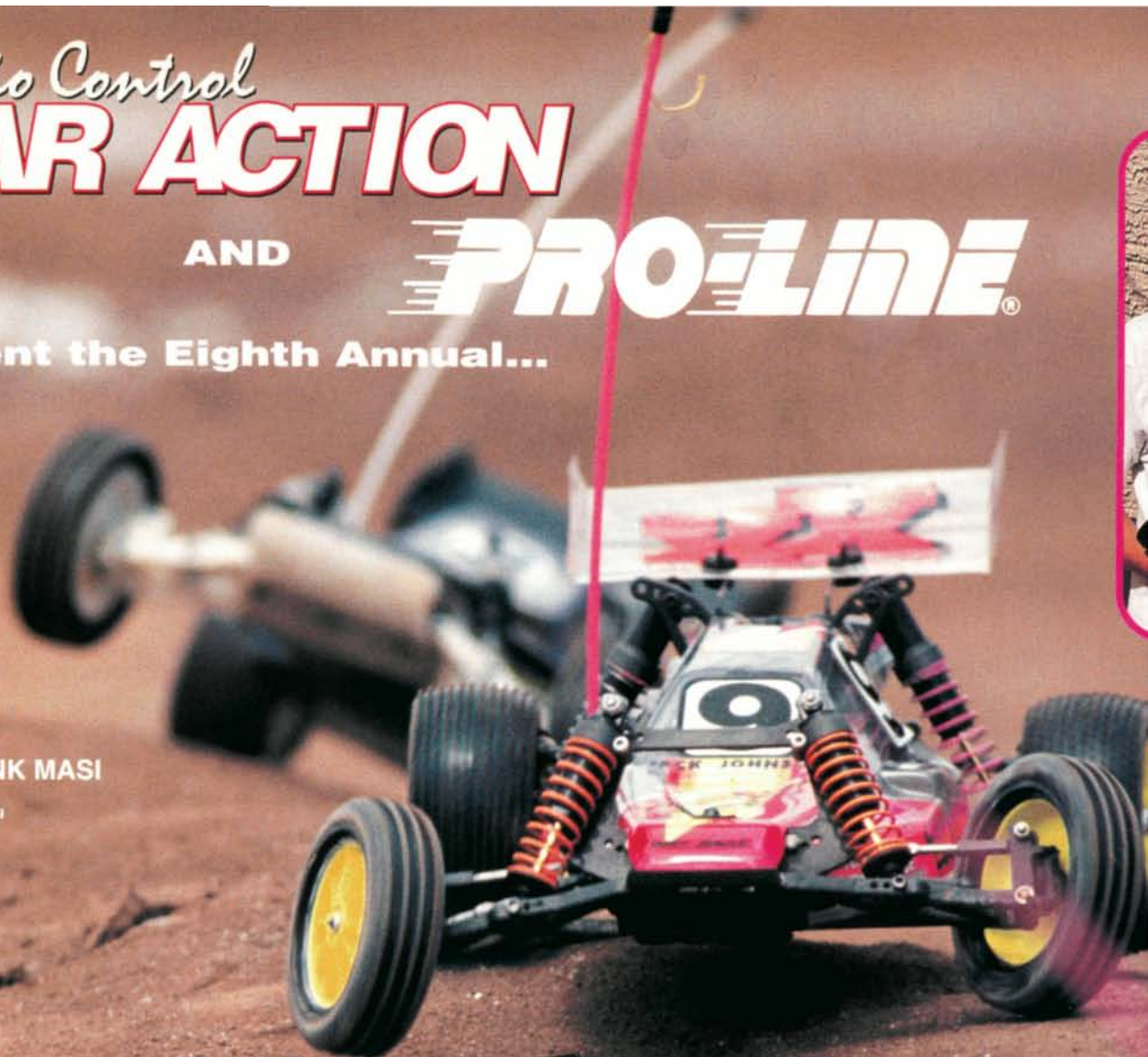
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by FRANK MASI

PHOTOS BY FRANK MASI



Truck stock



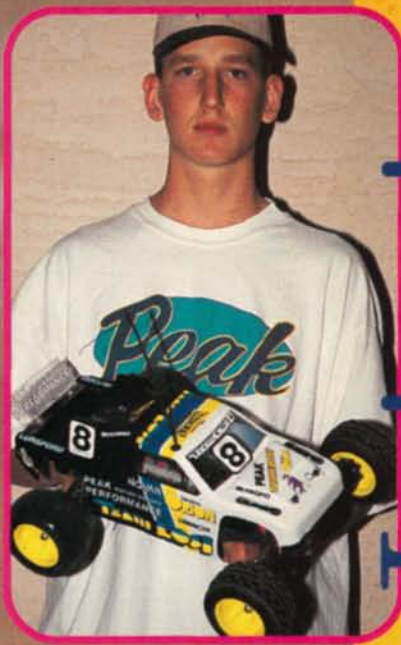
Steve Butts

Cactus



2WD stock

Richard Saxton



Truck mod

Jeremy Kortz



4WD mod

Rick Hohwart



2WD Mod

Jim Gard



Concours

Jerry Lamb

rattle & hum

WHERE'S THE TRACK? It's Friday morning, and practice has already started, but I'm still driving around Tempe, AZ, looking for the "new" Scale Racing Sports (SRS) Raceway. I know there must be a new track because, an hour ago, I found the old one—boarded up! Hoping that I have the correct phone number, I find a pay phone at the local Quicki-Mart. I dial, and a voice answers, "Hello, SRS...." Salvation!

I was in Arizona to cover the eighth annual Cactus Classic off-road race and, apparently, SRS, the shop that puts on the event, had moved to a brand-new facility in Scottsdale only one week before. Sponsored by Pro-Line and *Car Action*, the Cactus Classic has bloomed into one of the country's premier races. More than 300 trophy-hungry racers go west in search of fun in the sun. And with six full classes of racing, the Cactus has something for every interest—trucks, buggies and 4WDs.

lassic

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FOUND AT LAST!

The new SRS facility is impressive (certainly more so than the old, boarded-up track!), with a large, sweeping, dirt track and a well-stocked, on-site hobby shop. A drivers' stand had yet to be constructed, so racers had to stand on a large, paved embankment. This didn't make for the best visibility, and some of the shorter drivers complained that they couldn't judge some of the far corners of the track. Aside from this, the race proceeded without a hitch. In fact, I'd describe the event's atmosphere as



very laid-back; there wasn't a radio impound, yet there were no incidents of interference; laps were counted by hand, but there were no cries of "foul." This is how racing should be—low stress!

As expected, the 2WD and truck classes fielded the largest number of entrants. There were even splits of Losi and Associated products, with an occasional Schumacher and Traxxas thrown in for good measure. In 4WD Modified, the new Yokomo YZ-10 seemed to be the car to have, but in 4WD Stock, Schumacher cars were prevalent. Because racers could run in as many classes as they wished, some drivers ran in as many as three to get as much "trigger time" as they could over the weekend.

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Trick Pit Bits

Race Prep

Mike Dunn of R/C Race Prep was on hand at the Cactus with a few new products. First, he showed me the company's new Purple Haze, ROAR-legal stock motor. It has a narrow, split-rotor armature for high rpm and a pair of stronger magnets for increased torque. The Purple Haze also features lay-down brushes for more brush wraparound and higher efficiency.

Race Prep has also found another use for its RP-1000 Velcro®-brand fastener mounting tape: battery straps for the Losi Double-X. I saw most of the factory Losi drivers using this tape to hold in their cars' battery packs. Apparently, Race Prep's tape allows faster pack changes and holds the

cells more firmly.

Team Losi

Team Losi also debuted its line of lighter, stiffer, graphite-composite chassis parts for the Double-X buggy. Two lengths of chassis will be offered, as well as front and rear suspension arms and a rear shock tower. Also, Losi will soon be selling a lightened rear motor-mount plate for the Double-X. Made of aluminum, this milled plate will shave precious ounces off your buggy.



Front-Wheel Tricks

• **TEAM LOSI**—As I scoured the pits in search of hot news items, I came upon two neat tricks that the factory drivers were doing to their front wheels and tires. First, some of the Losi guys were increasing the widths of their cars' front tires by removing the outer lips of the wheels and then gluing the tires' beads in place of the lips. According to Jack Johnson of Losi, this modification provides more low-speed steering and makes the car smoother over bumpy sections of the track.

• **PRO-LINE**—The Pro-Line guys had a cool trick for the company's new Wide-5 front "webbed" tire: using side cutters or Lexan-body scissors, they carefully trimmed away the middle rib. Apparently, this mod makes the tire handle more predictably; steering is a little less aggressive, but smoother. →



Keepin' it Cool

One enterprising racer built this pit box that features two built-in Schumacher chargers with their own 12V power supply. On the top of the box, there's a Plexiglas car stand with a small fan to cool the car's motor when it comes off the track.



CLASSIC RACING ACTION

• **2WD Stock** is one of the toughest classes to win. Not only do you have to get your car tuned just right, but you also have to squeeze every ounce of power out of your stock motor. Plus, all of the cars are so evenly matched that one mistake can cost you the race. From the beginning of the A-Main, it was evident that Richard Saxton, Craig Lair, Rob

Moots and Jason Pang were showing no respect for top qualifier Chris Allen. With Saxton in tow, Lair shot out to an early lead from his eighth-place starting position. The two drivers put on a great showing; Lair's Double-X seemed to handle the track better than Saxton's RC10, but Saxton had the ponies! With less than a minute to go, Saxton made a picture-perfect jumping pass to get

by Lair and take the win with 11 laps in 4:17.5. Lair crossed the line next with 11 in 4:20.09, with some heavy pressure from Moots (4:20.4) and Pang (4:20.71). Close racing!

• **4WD Modified** was the next A-Main. This was easily the best race of the day. From his pole position, Rick Hohwart dove his Yokomo into the first turn, only to be overtaken by Jeremy Kortz's Yokomo. Greg

Cactus Results

2WD Stock

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires (F/R)
1	6	Richard Saxton	RC10	Peak	Reedy	Tekin	Airtronics	Pro-Line	Pro-Line/Pro-Line
2	8	Craig Lair	Double-X	Peak	Orion	Novak	Airtronics	Jammin'	Losi/Losi
3	5	Rob Moots	Double-X	Motor Man	Double Strike	Tekin	Airtronics	Stock	Losi/Losi
4	9	Jason Pang	N/A	-	-	-	-	-	-
5	7	Boe Bergueson	Double-X	Peak	Orion	Novak	JR Remote	Stock	Losi/Losi
6	3	Jade Kurtchi	Traxxas	Extreme	Nuclear	Tekin	Airtronics	Stock	Pro-Line/Pro-Line
7	10	Mason Marks	Double-X	Extreme	World Class	Novak	Airtronics	Stock	Losi/Losi
8	4	Richard Trujillo	RC10	Reedy	Orion	Novak	Airtronics	RCPS	Pro-Line/Pro-Line
9	1	Chris Allen	Double-X	Precision	Precision	Tekin	Airtronics	Stock	Losi/Losi
10	2	Todd Handel	N/A	-	-	-	-	-	-

4WD Modified

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires (F/R)
1	1	Rick Hohwart	YZ-10	Peak Perf.	Orion	Novak	Futaba	Stock	Losi/Losi
2	2	Jeremy Kortz	YZ-10	Peak Perf.	Orion	Novak	JR Remote	Stock	Losi/Losi
3	4	Greg Hodapp	YZ-10	Reedy	Reedy	Novak	Airtronics	Stock	Pro-Line/Pro-Line
4	3	Scott Roberts	YZ-10	Peak Perf.	Orion	Novak	JR Remote	Stock	Losi/Losi
5	5	Derek Furutani	YZ-10	N/A	-	-	-	-	-
6	6	Kris Moore	Lazer ZX-R	Twister	-	-	KO Propo	Stock	Losi/Losi
7	8	Regan LeBlanc	Cat 2000	Precision	Double Strike	Tekin	Futaba	Stock	Schumacher/Schumacher
8	7	Randy Joslin	N/A	-	-	-	-	-	-
9	10	Ryan Mailfield	Lazer	Race Prep	Sanyo	Novak	Futaba	A&L	Pro-Line/Pro-Line
10	9	Dan Daley	BossCat	Reedy	Sanyo	Novak	Futaba	Stock	Pro-Line/Pro-Line

Truck Stock

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires (F/R)
1	.3	Steve Butts	LX-T	N/A	-	-	-	-	-
2	1	Albert Guardado	RC10T	Peak Perf.	Orion	Novak	Airtronics	Stock	Pro-Line/Pro-Line
3	8	Mason Marks	LX-T	Extreme	World Class	Novak	Airtronics	Stock	Losi/Losi
4	2	Jade Kurtchi	LS-II	Extreme	Nuclear	Tekin	Airtronics	Stock	Pro-Line/Pro-Line
5	10	Charles Erickson	LS-II	Extreme	Perf. Match	Tekin	KO Propo	Stock	Pro-Line/Pro-Line
6	7	Bob Phares	LX-T	Precision	Reedy	Tekin	Airtronics	Andy's	Pro-Line/Losi
7	4	Brent Thielke	LX-T	Twister	Perf. Match	Novak	Airtronics	Stock	Pro-Line/Losi
8	5	Dave Pease	RPM	Precision	ESP/Shogun	Tekin	Airtronics	A&L	Losi/Pro-Line
9	6	Joe Villa	LX-T	Peak Perf.	Orion	Novak	Futaba	A&L	Losi/Losi
10	9	Ken Prue	LX-T	Precision	MaxCell	Tekin	Futaba	Stock	Losi/Pro-Line

2WD Modified

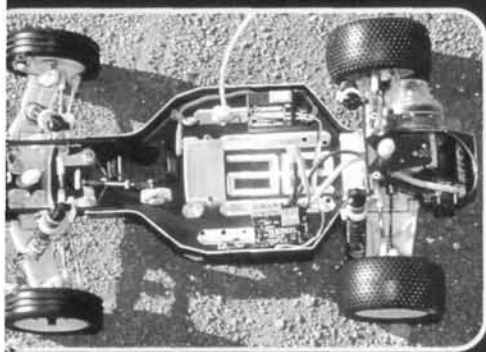
Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires (F/R)
1	5	Jim Gard	Double-X	Race Prep	Orion	Tekin	Airtronics	Stock	Losi/Losi
2	6	Mark Pavidis	RC10	Reedy	Reedy	Novak	Airtronics	RCPS	Losi/Pro-Line
3	1	Matt Francis	RC10	Reedy	Reedy	Novak	Airtronics	RCPS	Losi/Pro-Line
4	4	Greg Hodapp	RC10	Reedy	Reedy	Novak	Airtronics	RCPS	Losi/Pro-Line
5	2	Scott Brown	Double-X	Peak Perf.	Orion	Novak	JR Remote	Jammin'	Losi/Losi
6	8	Brian Kinwald	Double-X	Trinity	Trinity	Novak	Airtronics	Jammin'	Losi/Losi
7	10	Scott Hughes	RC10	Reedy	Reedy	Novak	Futaba	RCPS	Losi/Pro-Line
8	3	Rick Hohwart	Double-X	Peak Perf.	Orion	Novak	Futaba	Jammin'	Pro-Line/Losi
9	9	Jack Johnson	Double-X	Peak Perf.	Orion	Novak	JR Remote	Jammin'	Losi/Losi
10	7	Jeremy Kortz	Double-X	Peak Perf.	Orion	Novak	JR Remote	Jammin'	Losi/Losi

4WD Stock

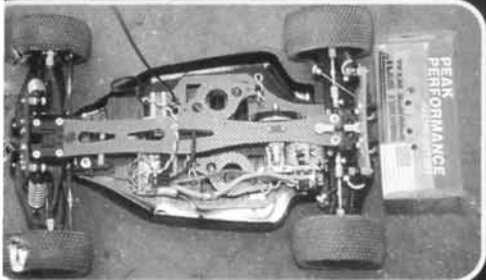
Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires (F/R)
1	2	Brian Burton	BossCat	Precision	Sanyo	Novak	Airtronics	Stock	Pro-Line/Pro-Line
2	1	Chris Stahl	Cat 2000	Badd Boyz	Badd Boyz	Tekin	Airtronics	Stock	Schumacher/Schumacher
3	4	Robert Heacox	BossCat	Precision	Trinity	Tekin	Airtronics	Stock	Pro-Line/Pro-Line
4	3	Jim Thomas	N/A	-	-	-	-	-	-
5	5	Mich Butts	N/A	-	-	-	-	-	-
6	6	John Contreras	ProCat	Race Prep	Trinity	Novak	Airtronics	Stock	Pro-Line/Pro-Line
7	9	Rick Stahl	Cat 2000	Badd Boyz	Badd Boyz	Tekin	Airtronics	Stock	Schumacher/Schumacher
8	7	Bill Murray	BossCat	Trinity	Team Smooth	Tekin	JR Remote	Stock	Pro-Line/Yokomo
9	8	Joe Mireles	BossCat	S&K	DS	Novak	Airtronics	Stock	Pro-Line/Pro-Line
10	10	Douglas Sparks	N/A	-	-	-	-	-	-

Truck Modified

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires (F/R)
1	1	Jeremy Kortz	LX-T	Peak Perf.	Orion	Novak	JR Remote	Jammin'	Losi/Losi
2	4	Derek Furutani	RC10T	N/A	-	-	-	-	-
3	3	Matt Francis	RC10T	Reedy	Reedy	Novak	Airtronics	Stock	Pro-Line/Pro-Line
4	10	Jack Johnson	LX-T	Peak Perf.	Orion	Novak	JR Remote	Jammin'	Losi/Losi
5	5	Scott Brown	LX-T	Peak Perf.	Orion	Novak	JR Remote	Jammin'	Losi/Losi
6	6	Mark Pavidis	RC10T	Reedy	Reedy	Novak	Airtronics	Stock	Pro-Line/Pro-Line
7	8	Scott Roberts	LX-T	Peak Perf.	Orion	Novak	JR Remote	Stock	Pro-Line/Losi
8	9	Jay Halsey	LX-T	-	-	Novak	-	Jammin'	Losi/Losi
9	7	Brent Thielke	LX-T	Twister	Perf. Match	Novak	Airtronics	Stock	Pro-Line/Losi
10	2	Greg Hodapp	RC10T	Reedy	Reedy	Novak	Airtronics	Stock	Pro-Line/Pro-Line



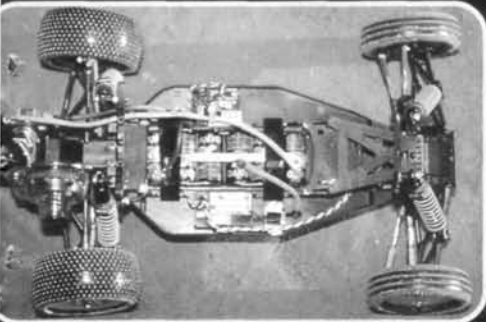
2WD STOCK



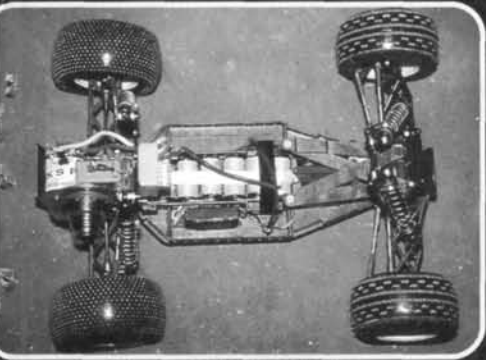
4WD MODIFIED



TRUCK STOCK



2WD MODIFIED



TRUCK MODIFIED



Hodapp was able to take advantage of the battle between the two and pulled into a very close third spot. For the next 3½ minutes, the trio treated the crowd to some of the closest, most exciting racing ever seen. Kortz maintained his lead, but Hohwart and Hodapp swapped places several times before Hohwart made his move to overtake Kortz with just one lap left! Hohwart pulled close to the back of Kortz's car, and the pressure was too much for Kortz as he veered just enough from his line to allow Hohwart to slip by and take the win with an incredible 12 laps in 4:17.51. Kortz took second, finishing in 4:18.79, with Hodapp in a distant third (4:27.03).

• **Truck Stock.** What started quietly became a heated, three-way battle for first between top qualifier Albert Guardado, second qualifier Jade Kurtchi, Mason Marks and number-three man Steve Butts. It was Traxxas versus Associated versus Losi, with mere seconds separating the four trucks. Butts' LX-T beat the others to the line with a super-fast time of 4:20.35 for 11 laps. Next to cross the line was Guardado's RC10T with 11 in 4:22.7 and Marks' LX-T hot on his heels. Kurtchi narrowly missed the extra lap, and his Traxxas LS-II finished 10 laps in 4:01.78.

• **2WD Modified** was the Cinderella story—the one every privateer dreams of. The crowd watched in awe as “Team Local Yokel” driver and Arizona native Jim Gard's Losi Double-X chased, caught and passed top qualifier Matt Francis' RC10 for the lead and the win. The other big story of this main was Mark Pavidis' frantic late-race charge from the back of the

pack. I've never seen him push a car to its ragged edge before, and it was awesome! He was hot on Gard's heels, but his charge was halted when the two moved to put Jeremy Kortz a lap down. On the last lap, Gard slipped by Kortz (he had this track dialed!), but Pavidis wasn't as fortunate. Kortz didn't let him by and caused him to attempt a last-ditch, midair pass that resulted in a collision. The crowd booed, the drivers exchanged words, and Gard took the win. From my perspective, I don't think that Pavidis would have caught Gard in time anyway, but Kortz *should* have let him by to try.

• **4WD Stock** was the battle of the Schumachers, and boy, did these guys look as if they were having fun! With his new Cat 2000, top qualifier Chris Stahl had his work cut out for him as he fended off the hard-charging BossCat of second qualifier Brian Burton. Both drivers showed finesse and skill as they raced side by side without touching. After 4 minutes, Stahl (4:03.15) was denied the win as Burton out-sprinted him to the line with 10 laps in 4:02.59.

• **Truck Modified** was all Kortz. He had worked hard all weekend to put his Losi LX-T on the pole and wasn't about to give it up for anyone. He shot off the line, only to park it in the first turn's corner board. A quick-thinking marshal enabled Kortz, amazingly, to retain the

The Cactus Classic boasts a relaxed atmosphere—the drivers enjoyed themselves immensely.

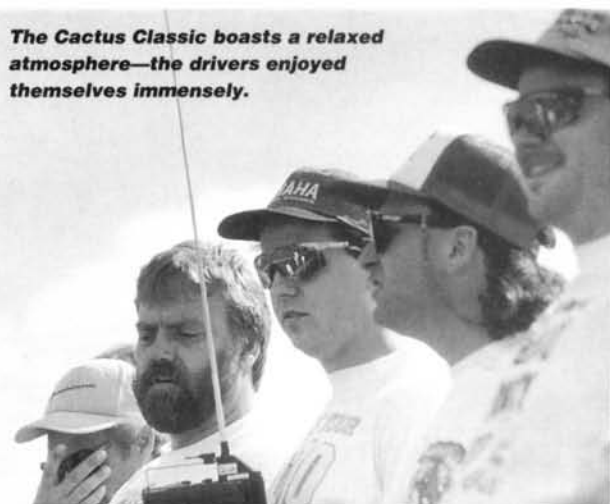


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CACTUS CLASSIC

lead. From then on, the race developed into a furious fight as Derek Furutani, with his RC10T, chased down Kortz and challenged him for the lead. In what may have been a sort of payback maneuver for the 2WD Main, Greg Hodapp stuffed Kortz into the very board that Kortz had put himself in during the first lap. Hodapp was a lap down, and the crowd reacted to his move as they had when Kortz failed to let Pavidis pass in 2WD Modified. Undaunted by this incident, Kortz came back to edge Furutani for the win by less than 1 second. Regardless of his actions in the 2WD Main, Kortz earned this win the right way.

DESERT DUELERS

The Cactus Classic is one race that I'll be returning to next year. It was everything I had heard it would be and more. The mellow atmosphere was a most pleasant change, and the SRS crew did a wonderful job of keeping things running smoothly. It was also nice to see the "unsponsored" drivers really steal the show—and put on a better display of sportsmanship than some of the so-called professionals. Anyway, get out to next year's event if you can. Call me if you need directions, though, because after hours of driving around Phoenix and Tempe, I'm an expert! ■

[Editor's note: our apologies to 4WD stock winner Brian Burton; problems with film prevented us from publishing a photo of Brian and his winning car].

PHOTO BY MIKE LEE



The racin' Maifields: 7 year old Ryan, mom, Tanya, and dad, Perry.

Never too Young to Start!

How old is "old enough" to get involved with R/C car racing? I used to think that someone had to be at least 11 or 12 to be able to understand the techniques of building and driving a somewhat sophisticated racing machine. But after meeting 7-year-old Ryan Maifield, my opinion has changed drastically!

Ryan, who has been racing for only 18 months, not only competed at the Cactus Classic, but he also made the A-Main in the 4WD Class and got to race against such big-name drivers as Rick Hohwart and Kris Moore. According to his father, Perry, an avid R/C racer himself, Ryan got his start when he received an Associated RC10T on his sixth birthday. After two weeks of practicing in their front yard, Perry took Ryan to the SRS track for his first club race, and the youngster placed second in the novice class. From his first taste of racing, Ryan was hooked; now he and Perry race at least twice a week. His mother, Tanya, is the family's pit crew and cheering section.

In addition to his A-Main finish at the Cactus, Ryan is the current Arizona state novice truck champion and has 15 trophies on his mantel. He also won an LX-T by being the first to complete 200 laps at the Race Prep 200 in July '93. Ryan doesn't just drive; he also enjoys working on his cars. According to Perry, "When Ryan comes home from school, he goes right to his room, puts on the cartoons and takes his cars apart and puts them back together. He might not get every bolt and nut in the right place, but the car works when he's done." If you happen to visit the SRS track in Arizona, don't be surprised if you get dusted by 7-year-old "Flyin'" Ryan Maifield!

SCOPING OUT

TEKIN TSC 610-GR

by JOHN RIST

IT'S THE NATURE of the beast! Electronic speed controllers (ESCs) with reverse are less efficient and therefore run hotter than forward-only-with-brakes ESCs. This is true because a reversing ESC's power-handling field-effect transistors (FETs) supply the motor with both forward and reverse current.

Tekin*—always a major force in the world of racing—decided to build a reversing ESC with brakes that would perform more like a racing controller than one with reverse. In pursuit of this goal, Tekin engineers have supplied the TSC 610-GR with 12 of their Gold FETs—the same as are in Tekin's top-of-the-line TSC 411-G2 racing controller. To further enhance its performance, Tekin uses monster motor and battery leads—the type and size usually found on killer racing machines.

What It Has

- Reverse bypass.
- Variable-time reverse delay.
- Automatic thermal shutoff.
- Electronic reverse-voltage protection.
- Replaceable motor and battery wires.
- 12 FETs (eight for forward, four for reverse).
- High-frequency motor control.
- Three trim pots: neutral, full-speed and reverse-delay.
- Built-in pulse-checking LED.
- BEC (battery-eliminating circuit).
- Installed Tamiya-style battery connectors and bullet motor connectors.
- Tekin's universal receiver connector system.
- Heat sinks.

Of course, Tekin includes comprehensive instructions, a screwdriver (for making adjustments), servo-mounting tape, tie-wraps, hot Tekin decals and plugs to prevent dirt from entering the adjustment holes.

PEEKIN' AT THE TEKIN

To check inside, I opened the 610-GR's case by removing four screws. The miniature, surface-mounted components look like those you'd find in a computer. To handle the motor current, the printed-circuit board (pcb) is covered with a particularly thick layer of copper, and the components are soldered into this.

Mounted on the pcb are four large brass posts that protrude through the case and act as terminals for the motor wires and battery wires. This allows you to replace a damaged wire and to rewire the controller for a different vehicle without opening its case. The motor and battery wires are color-coded (pink and blue for the motor wires and red and black for the battery wires), and the case's tongue-and-groove seal should keep the dirt locked out.

TEST 1

With 12 amps of current flowing, I measure the voltage drop across an ESC and then calculate its "on" resistance by dividing the measured voltage drop by 12. I measure resistance twice—along the full length of the motor wires and battery wires (including connectors) and 2 inches along them.

The first reading helps me to determine an ESC's resistance as it comes from the factory, and the second gives a standard reading with which I compare ESCs.

• **Voltage drop along length of wires**—0.19 volt—a resistance of 0.016 ohm.

• **Voltage drop 2 inches along the wires:** 0.12 volt—a resistance of 0.01 ohm.

For a reversing ESC, these figures are good—admittedly, not in the same class as top-of-the-line racing controllers (forward-only with brakes), but these resistance readings alone make the TSC 610-GR a great replacement part for the mechanical controllers that come in most buggies and put it at the top of its class.

It's interesting that the first resistance



reading is almost twice as big as the second one—mostly because of the battery connectors and motor connectors, which impede the current flow. If you have the skill to replace them, try Litespeed* Super Connectors or Deans* Ultra Plugs; they work extremely well. But remember that if you reverse any of the connections, you'll probably wipe out the controller and void the warranty. I like to hard-wire my motor connections and use a good connector for the battery. If you have questions, I hope you have a good hobby shop in your neighborhood with people who can answer them. Although low for this type of ESC, the resistance may well cause overheating during heavy use, and that brings me to my next test.

TEST 2

I "cook" every controller I test by adjusting the resistor bank to pass 20 amps of current, jamming the throttle wide open and running the ESC for 15 minutes while it pumps a hefty 20 amps.

I ran the TSC 610-GR with its heat sinks in place, but I didn't provide any air cooling. After 15 minutes, it was almost too hot to touch, but still operating

normally. The Tamiya-style battery connector was very hot, but the bullet-style motor connectors were barely above room temperature.

TEST 3

In my dead-short test, I check to see whether the ESC could survive the heavy current it would have to withstand if a gear jammed or the motor fried. For this test, I run a piece of monster wire across the motor leads and jam the pedal to metal. The current jumped to 40 amps (the limit of my bench supply), and I let the controller struggle along in this mode for 30 seconds. After this, it was quite hot, and the Tamiya-style battery connector was so hot that it had started to soften. But the TSC 610-GR never stopped

parking lot at work. The on/off switch has a pair of mounting ears that will accommodate a couple of no. 0 self-tapping screws, so it's easy to bolt the switch onto the edge of a pan-car chassis.

With reversing controllers, it's sometimes a hassle getting forward and reverse properly set up. For most Futaba transmitters, the throttle-reversing switch must be in the reverse mode. The pink motor wire should go to the "+" terminal of the motor, and the blue should go to the "-." To make sure forward and reverse have been correctly set, dial out reverse by turning the reverse-delay pot fully counterclockwise. The car should now only go forward, and it should have good brakes. If it runs forward with the trigger in the full-brake position, the throttle-reversing

80 and 90 percent of its travel. I then adjusted the full-speed pot until the pulse-checking LED came on fully. I rechecked everything to make sure that I had a full range of reverse, forward and neutral. The pots are centered under holes in the case, and the supplied adjustment screwdriver worked well.

Having charged several 6-cell packs, I drove this hot setup in the parking lot during lunch hour, and several work mates joined me. It's always a trip to watch the amazed faces of people who have never seen how fast a race-ready R/C car can go.

Right from start, the TSC 610-GR was one hot ESC. It had the punch to break the rear wheels loose; and banging between forward and reverse produced 180-degree sliding turns. Run times were good (more than 4 minutes), and with ample cooling air and the heat sinks installed, the TSC 610-GR became only slightly warm. Considering it was handling a hot, 13-turn, double-wind motor, this is a sure sign that the TSC 610-GR has unusually low resistance for a reversing ESC.

Then my good friend Greg Steele took over the controls. I cranked in some reverse delay and, with the incredibly smooth throttle response provided by the high-frequency motor drive, my car was able to survive this first-time driver.

CONCLUSIONS

With a lower resistance than any other reversing ESC I've ever tested, the TSC 610-GR is among the best of its kind. Reverse can be completely dialed out, so the TSC 610-GR could be used for ROAR stock-class racing. Its performance is comparable to many of those achieved by low-end racing-style ESCs.

It should do well in off-road stock-class racing, in which run time is rarely an issue, but it really shines in backyard burners that need reverse to get back into the action when they're jammed hood first into a tree or a curb. It will also shine brightly in a scale creation that needs the realism of very smooth, controllable reverse.

So if you're looking for an ESC with reverse that can double as a stock-class-racing controller and you demand smooth throttle response in forward and reverse, check out the TSC 610-GR. I'm confident that you'll find it first-class.

**Addresses are listed alphabetically in the Index of Manufacturers on page 153.*

Tekin TSC 610-GR

DIMENSIONS

Height (w/heat sink installed) ...1.14 in.
Width1.70 in.
Length1.95 in.
Weight (w/wires and heat sink)3 oz.

TUNING

Access to controlsExcellent
Ease of adjustmentGood

LIST PRICE & WARRANTY

.....\$205/120 days

ELECTRICAL (Mfr.'s specs)

Max. voltage12 volts (10 cells)

Min. voltage4.8 volts (4 cells)
Max. current (fwd./rev.) ...200/100 amps
Resistance0.008 ohm

TEST PARAMETERS

Voltage6 volts
Current12 amps
• Voltage drop
-along full length of wires0.19 volt
-2 inches along wires0.12 volt
• Calculated resistance
-along full length of wires0.016 ohm
-2 inches along wires0.01 ohm
BEC voltage, 6-cell pack4.95 volts
(Resistance = voltage drop / current)

COMMENTS: tired of mechanical speed controllers with their tangled mess of servo, resistors and rotary switch? Maybe it's time to look at the Tekin TSC 610-GR—a reversing ESC that you can use for racing by dialing out reverse. Its very low resistance (for a reversing ESC) means it's great for any backyard-burning buggy, and it's fairly good for local, stock-class, off-road racing.

pumping current; it seems close to being bulletproof.

The problems that make a car run slowly or stop—a burnt-out motor, a jammed gear and shorts caused by frayed motor wires—all cause overheating. So, if your car slows down, pack it in for the day, and check it out before you destroy what's left of your buggy.

BEATIN' THE TEKIN

This Tekin instruction book is probably one of the best; it covers every aspect of installation in great detail. And the TSC 610-GR has a full set of connectors and comes with servo-mounting tape, so even newcomers should be able to install this controller successfully.

I installed the 610-GR in my RC10L pan car with a 1940 Ford roadster body; it looks fast and impresses everyone in the

switch on the transmitter must be adjusted. If the car goes backwards when you apply forward trigger, you've reversed the motor wires.

Finally, match the TSC 610-GR to the transmitter. I started with zero reverse delay (fully turned clockwise). Then I turned the transmitter on, connected the battery and turned on the ESC. The car's rear wheels started to spin. I slowly adjusted the neutral trim pot until the wheels stopped turning and the pulse-checking LED came on brightly. This pot is a little touchy and had to be adjusted carefully to hit neutral right on the nose. The final adjustment was best made with the throttle-trim setting on the transmitter.

Having set the neutral pot correctly, I was able to achieve forward and reverse with the transmitter's throttle trim pot. Next, I pulled back the trigger to between

LETTERS

(Continued from page 8)

reading "Car Action," and you'll start getting into the swing of things pretty soon. Maybe some nearby R/C'ers will contact you and help you out. It's a great hobby. Glad to have you aboard! JH

ASSOCIATED 10T/BUSTER?

I own an RC10 and an RC10T. They both work well, but I'm looking for something a little more fun and really big, such as the Kyosho USA-1 or the Tamiya Clod Buster. I like them both, but I'm more satisfied with Team Associated electrics. Do you know whether Associated has any plans to make a mammoth truck like those two? By the way, great magazine!

HETHE BREVER
Waukegan, IA

When it comes to monster trucks, Tamiya and Kyosho reign supreme, Hethe. Unfortunately, most of the "racing only"-oriented manufacturers don't produce monster trucks; I think they should, though. I myself am really into driving radical monster trucks. In fact, check out my article on the truck I built ("Project

Big Truck," July '94). Basically, the truck started out as a Tamiya Clod Buster, and from there I modified it with almost every imaginable part available. It's so cool-looking, and it's just beggin' me to go out and destroy things with it. Anyway, you might want to go that route as well. Try picking up a used Clod Buster (I'd recommend the USA-1, but there aren't many hop-ups available), and then modify it as your budget allows. That way, you'll have a killer monster truck that's also a bit beefier. JH

GAS ALLEY II

I'm a big fan of your mag—all the way back to '89. I'd like to know whether you could do more reviews on gas engines, such as those made by O.S., Yokomo, TNT and so on—.12 and .15-size and all. You did one, "Gasoline Alley," in your March '92 issue. Now, with the burst of gas kits available, these reviews are sure to be a hit!

ROLAND MARTINEZ
Corona, CA

Sounds cool to us, Roland. We're working on setting up a dyno to test engines, so I hope we'll do an article comparing all the

current .12s, .15s and even .21s on the market. As we say in the nitro world: stay tuned! JH

HOG PAINT

I'm painting my new truck body to look like the Harley-Davidson Superbike. I haven't been able to find any Harley-Davidson decals for it. I was wondering whether you know of any companies that make them and where I could get some. Thank you.

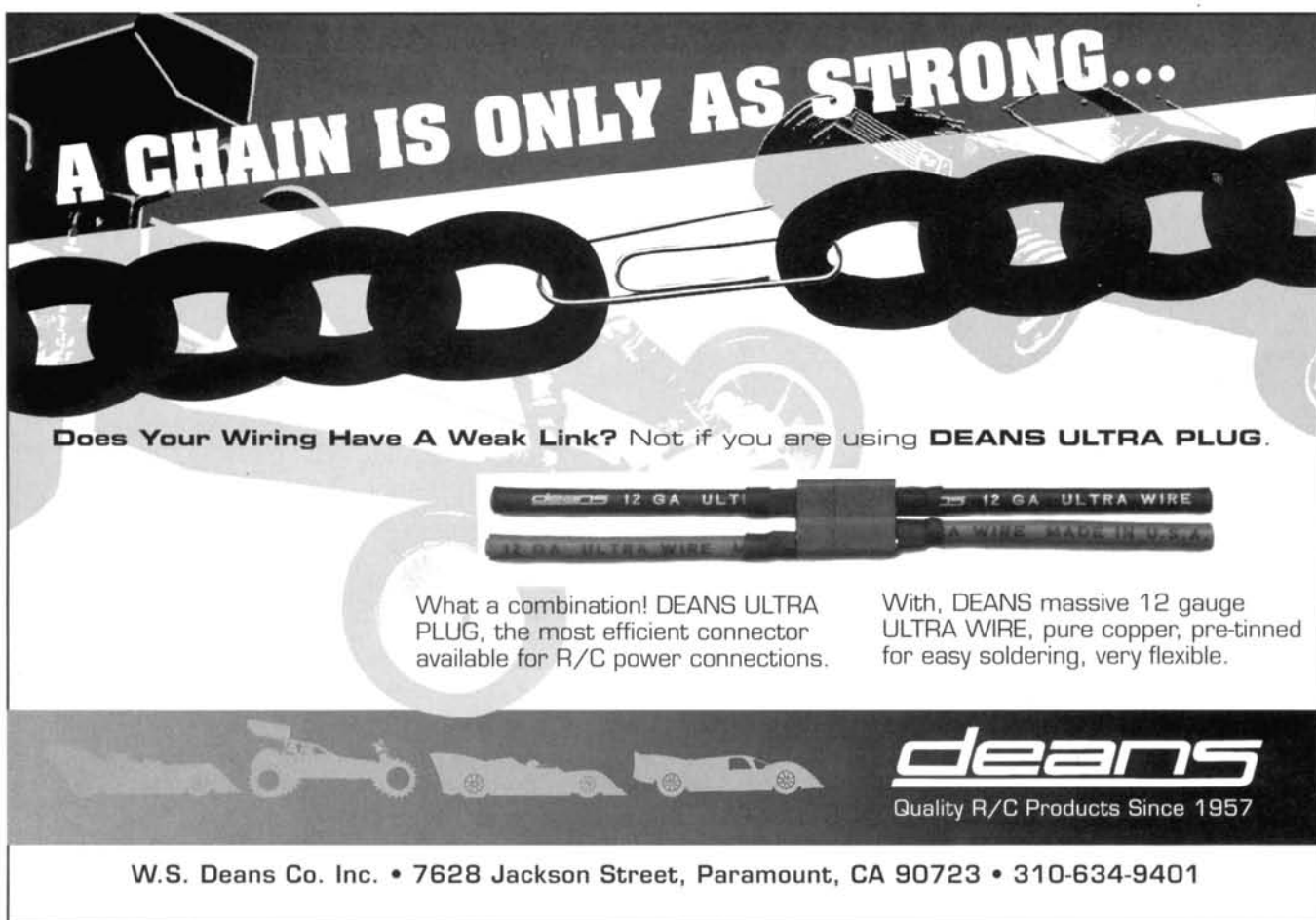
SEBASTIAN LOPEZ JR.
Beaumont, TX

Sebastian, you might want to contact Harley-Davidson directly at 3700 West Juneau Ave., Milwaukee, WI 53208; (414) 342-4680. They might be able to help you in your quest. If they can't, try contacting Autographics of California, 7401-1 White Ln., Bakersfield, CA 90292; (805) 836-2886. If they don't have any Harley stickers, maybe they can point you in the right direction. Good luck! JH

SONIC SAUCE

In the November '93 "R/C Doctor," I found an interesting article, "Doc's Secret

(Continued on page 118)



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LETTERS

(Continued from page 115)

Sauce," that gives a recipe for improving stock motors. I own a Reedy Modified Sonic 13-turn motor. What would happen if I put Doc's Secret Sauce on it? Love your magazine!

PATRICK LOWER
San Diego, CA

Hold off on using the Doc's Secret Sauce on your Sonic motor, Patrick. Doc's concoction makes stock motors—not modified motors—run faster. The combination of the comm drops and Happich Simichrome paste helps to smooth a stock motor's bronze bushings and makes them perform more like ball bearings, which you'd find in a modified motor's can. If you tried using the sauce on your modified motor, you'd waste the bearing. To get the best performance out of your modified motor, keep it clean, and inspect the comm and brushes to make sure they're in good shape. When you clean your modified motor, be sure to put a drop of oil on the bearings so they don't get destroyed by dirt.

JH

DIAMETER DILEMMA

How do you measure a rim's diameter? And how can you tell whether you have an RC10 CE, an RC10 Team Car, or just the regular RC10?

JASON TOMKINS
Hubbard Lake, MI

To find your rim's diameter, measure where the tire's bead meets the rim, from top to bottom. Don't measure the outer edge of the rim, or you won't get an accurate measurement.

As for your RC10 inquiry, here are the major differences between the three: basically, the RC10 Championship Edition comes with a gold-anodized chassis, the Stealth tranny (equipped with bushings), bushings instead of bearings, a stock motor, a resistor-type speed controller and gold-anodized shocks. The Team Car comes with a black-anodized aluminum tub, a Stealth tranny, full ball bearings and hard-anodized shocks. The regular RC10 is equipped with the same chassis as the Team Car and the RC10 CE, but it has the old six-gear tranny and shorter suspension arms.

JH

WE WANT TO HEAR FROM YOU!



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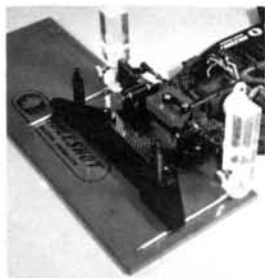
e-mail us on the Internet

Chris Chianelli:
chriscc@airage.com

John "Doogie" Howell:
johnh@airage.com

John Huber:
jhuber@airage.com

Karen Jeffcoat:
karenj@airage.com



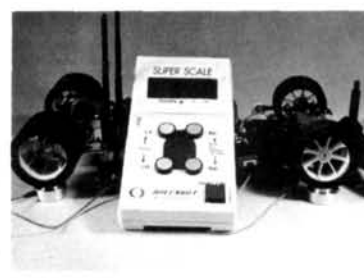
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Step-by-Step DuraTrax LX-T Conversion

BY JOHN HUBER

IF YOU HAVE an electric Losi* LX-T, you might have considered converting it into a gas truck. The conversion is easier than you might think. In this article, I'll show you how to convert the truck from Ni-Cd to nitro with the DuraTrax* Gas Conversion kit. The kit I used came with a CZ-R engine. The conversion is also available without the engine, and there's a version for the RC10T.

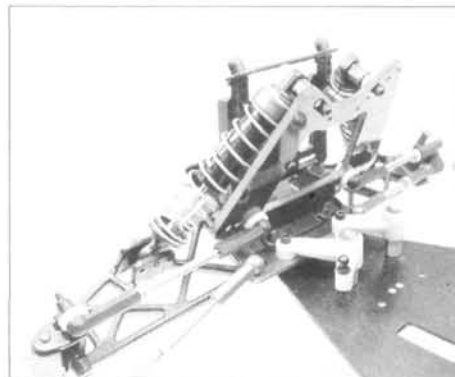


1 The first step in the conversion is to prep the gas engine. This involves mounting the carb, the flywheel, the clutch, the muffler and the motor mounts. Use a little high-temp silicone on the base of the carb and the muffler. Use some Loctite 242 thread-lock on the motor mounts. For the clutch nut, use some 271 thread-lock; it's very strong stuff. I replaced the stock cylinder head with an OFNA* heat-sink head for better cooling.



2 I recommend that you use an RCPS* locking E-ring to secure the clutch bell. If the stock E-clip fell off, you would lose the bearing and possibly strip the spur gear.

PHOTOS BY JOHN HUBER



3 Now remove the entire front end of the LX-T, and bolt it to the new aluminum chassis. Also, mount the steering bellcrank and all the tie rods.



4 Now for the transmission. If you have an LX-T with the Double-X tranny, you'll need a different set of gearbox sides. I chose Thorp's* aluminum set (left), but DuraTrax also makes a plastic set for the Double-X (right). If you have an older LX-T, you can use the supplied parts.



5 It's easy to put the diff together. You simply rebuild it with a sprocket instead of a gear. If you're using the Double-X, you'll have to get the sprocket for the DuraTrax RC 10T kit and open the center hole slightly using a reamer.

ADDITIONAL PARTS USED

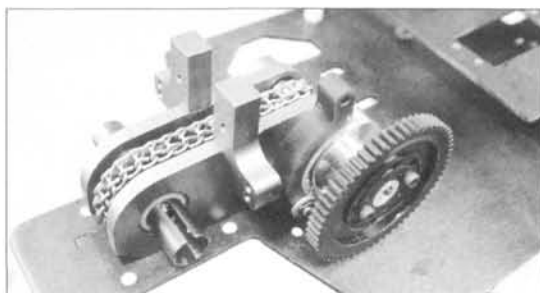
DuraTrax flip-top tank
Thorp gearbox sides

DuraTrax RC-10T sprocket
OFNA .12 heat-sink head

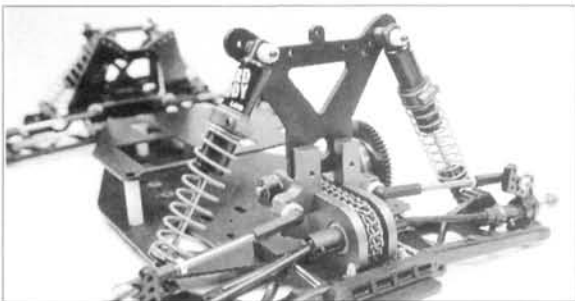
Kimbrough servo-saver
Two 3/16 x 3/8 straight bearings



6 Now bolt the brake arm to the gearbox side. Make sure that it moves freely on the pin. At this time, you should also mount the pivot balls for the rear tie rods on the gearbox sides.



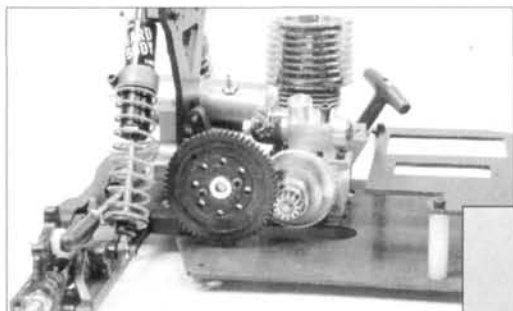
7 Assemble the drive chain with the diff and the front sprocket, and drop the assembly into one side of the gearbox. Add the other side of the gearbox, and mount the entire assembly on the chassis. Make sure that the chain is straight and runs freely. (You might have to adjust the front sprocket to straighten the chain.) Secure the front sprocket by applying 271 thread-lock to the setscrew.



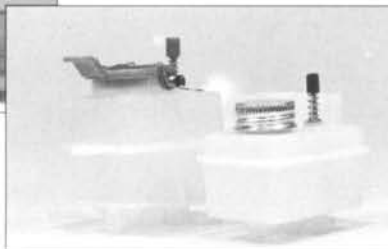
8 Now, you can mount the entire rear suspension. Bolt the new rear shock tower and the front hinge-pin mounts using the supplied hardware. The rear hinge-pin mount is a stock Losi part, but it's fastened with two 8-32 nuts.



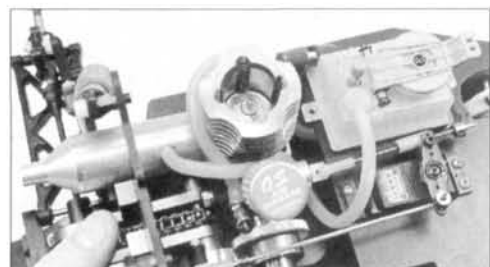
9 Next, mount the steering servo and the radio tray. The chassis has been drilled to accept most servos, but I had to enlarge the hole in the radio tray and space the tray up so that it would clear the large Kimbrough* servo-saver. The steering setup shouldn't be any trouble for anyone who's familiar with electric cars.



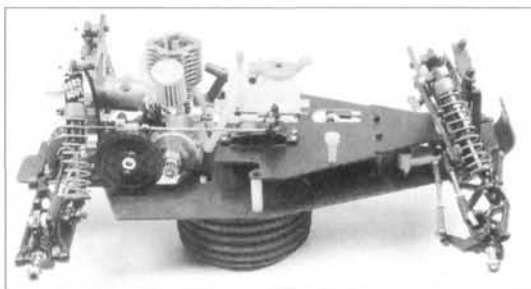
10 Now you can mount the engine on the chassis. Use the slots in the chassis to set the gear mesh. There should be a slight bit of backlash on the gears. Use 271 thread-lock on the bolts when you're satisfied with the gear mesh.



11 I opted for the new DuraTrax fuel tank (left) instead of the one included in the kit. It's larger, so it provides longer run times, and it also has a built-in flip top for fast, easy fueling. You should get an in-line fuel filter to protect your engine from particles that might get into your tank.



12 Now you're ready to mount the throttle servo and the linkage. If your servo is larger than standard, you'll have to enlarge the hole slightly. Make sure that the brake isn't engaged when the carburetor is at its idle position.



13 You're now looking at a nitro LX-T! Just mount your receiver and battery pack, and you'll be ready for action.

*Here are the addresses of the companies mentioned in this article:

Team Losi, 13848 Magnolia Ave., Chino, CA 91710; (909) 465-9400.
DuraTrax/Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826; (217) 398-6300.
OFNA Racing Division, 18 Technology, Ste. 159, Irvine, CA 92718; (714) 753-6056.
R/C Performance Specialties (RCPS), 18312 Gifford St., Fountain Valley, CA 92708; (714) 962-6928.
Thorp Mfg., 4054 E. Mission Blvd., Pomona, CA 91766; (714) 622-6518.
Kimbrough Products, E. St. Andrews Place, Unit F, Santa Ana, CA 92705; (714) 557-4530. ■

INDEX OF MANUFACTURERS

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Aero-Car, P.O. Box 336, Western Springs, IL 60558; (708) 246-9027.

Associated Electrics Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626; (714) 850-9342.

Barracuda Performance, P.O. Box 126, Glasgow, MT 59230.

Bich'n Bodies, 4903 Cloverfield Rd., Pearland, TX 77584; (713) 485-0413.

Blue Thunder, distributed by Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-0022.

BMT, distributed by Racer's Choice, 6N258 Acacia Ln., P.O. Box 405, Medinah, IL 60157; (708) 980-4863.

Bolink R/C Cars Inc., 420 Hosea Rd., Lawrenceville, GA 30245.

BRP Inc., 1575 Lowell Street, Elyria, OH 44035; (216) 204-0270.

Byron Originals, P.O. Box 279, Ida Grove, IA 51445.

Cippola, distributed by Speedline, 6606 Cypress Point N., Austin, TX 78746; (512) 327-8485.

CRC, 6860 Stanwix Ave., Rome, NY 13440; phone and fax (315) 338-0867.

Dahm's Racing Bodies, P.O. Box 360, Cotati, CA 94931; (707) 792-1316.

Dan's RC Stuff, 9525B Cozycroft Ave., Chatsworth, CA 91311; (818) 700-6912.

Deans Connectors, distributed by Ace R/C, 116 W. 19th St., Box 511C, Higginsville, MO 64037.

Du-Bro Products, P.O. Box 815, 480 Bonner Rd., Wauconda, IL 60084; (708) 526-2136.

DuraTrax/Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826; (217) 398-6300.

Dynamite, distributed by Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511.

Futaba Corp. of America, 4 Studebaker, Irvine, CA 92718; (714) 455-9888.

JR Remote Control, distributed by Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511.

Inside Line, 12859 Rt. 108, Highland, MD 20777; (301) 854-2701.

Irrgang Racing Service, 411 Cannon Range Rd., Milmay, NJ 08340.

KO Propo, 25-10 Sendagi, 3-Chome, Bunkyo-ku, Tokyo, Japan.

Kyosho/Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826; (217) 398-6300.

Loctite Corp., 4450 Cranwood Ct., Cleveland, OH 44128.

McCoy Racing, 1778 Albright Ave., Upland, CA 91786.

Mugen USA, 7021 Veterans' Ave., Brooklyn, NY 11234; (718) 251-7660.

Mu-Juice, distributed by Mugen USA (see address above).

Nittech Precision Racing Products, 5565 Wilson Dr., Mentor, OH 44060.

Novak Electronics Inc., 18910 Teller Ave., Irvine, CA 92715; (714) 549-0875.

O.S., distributed by Great Planes Model Distributors, P.O. Box 9021, Champaign, IL 61826-9021; (217) 398-6300.

Pro-Line USA, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781.

Racer's Choice, 6N258 Acacia Ln., P.O. Box 405, Medinah, IL 60157; (708) 980-4863.

RCPS (R/C Performance Specialties), 18312 Gifford St., Fountain Valley, CA 92708; (714) 962-6928.

Rex Engines, distributed by Paris Racing, 4254 Independence St., Chino, CA 91710.

T.A. Emerald Industries, 92 Corporate Park, Ste. C-127, Irvine, CA 92714.

Tamiya America Inc., 2 Orion, Aliso Viejo, CA 92656; (714) 362-2240.

Thorp Mfg., 4054 E. Mission Blvd., Pomona, CA 91766; (714) 622-6518.

Team Losi, 13848 Magnolia Ave., Chino, CA 91710; (909) 465-9400.

Trinity Products Inc., 1901 E. Linden Ave. #8, Linden, NJ 07036; (908) 862-1705.

Yokomo Ltd., 25-2, Senju-Motomachi, Adachi-ku, Tokyo 120, Japan.

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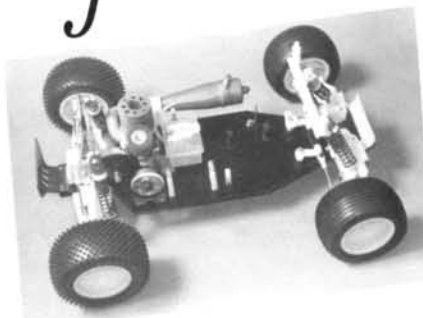
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Integy ACTIVE battery cycling process is developed through hundreds of tests and lab. tests. Individual cell performances are enhanced by using the latest charging and discharging techniques.

Implemented

Batteries are processed by automated cycling units under climate controlled environment until the cells become ACTIVE power cell. Then, they are matched using the most accurate equipments available.

Results

Integy racing batteries deliver unsurpassed quality & performance. This all-new matching process brings higher level of racing to racers throughout the World.

Ni-Cd INDI

Now, you can maintain your battery pack with our ACTIVE final discharge process. Integy Ni-Cd INDI magically discharge each cell to a preset level. Auto cutoff feature equalize and recondition your battery pack to its maximum capacity.



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